DOCUMENT RESUME

ED 147 947 95 EA 010 143

AUTHOR Schalock, H. D.; And Others
TITLE Alternative Models of Competency Based Education. Working Draft.
INSTITUTION Northwest Regional Educational Lab., Portland, Oreg.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Jan 76
CONTRACT 400-76-0028
NOTE 110p.; For related documents, see EA 010 143-148 and ED 104 026

EDRS PRICE MF-$0.83 HC-$6.01 Plus Postage.
DESCRIPTORS *Definitions; Educational Innovation; Elementary Secondary Education; *Models; *Performance Based Education; *Program Development

ABSTRACT

This monograph examines the concept of competency-based education (CBE) as it applies to elementary and secondary schools by identifying the defining characteristics and underlying rationale that distinguish CBE from other educational approaches, by describing a decision-making framework for use with CBE programs, and by discussing several alternative CBE models. Part 1 defines CBE, examines its underlying assumptions, and traces the concepts and practices from which it has emerged. CBE is defined both formally and operationally, and the concept of alternative, partial, and approximate models of CBE is examined. Part 2 outlines a framework for organizing the information needed to make decisions about the content of a CBE program and the procedures for implementing such a program. Part 3 defines three alternative CBE models and traces the implications two of the models have for the complexity of program operation. All three models are discussed in relation to the variety of possible CBE models and the types of programs possible for any particular model. (Author/JG)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED147947

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

E. Tyler

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

ALTERNATIVE MODELS OF COMPETENCY BASED EDUCATION

H.D. Schalock
Teaching Research Division
Oregon State System of Higher Education

W.G. Spady
National Institute of Education

W.E. Hathaway
Northwest Regional Educational Laboratory

W O R K I N G D R A F T

Oregon Competency Based Education Program
Northwest Regional Educational Laboratory
3000 Market Street, N.E., Suite 323
Salem, Oregon 97301

The work upon which this publication is based was performed pursuant to contract No. 400-76-0028 with the Productivity Group of the National Institute of Education. It does not, however, necessarily reflect the views of that agency.

The content of this publication represents development work conducted early in the Program's history. To be kept informed concerning the availability of subsequent reports and products, contact the Oregon Competency Based Education Program at the address shown above.

January 1976

EA 010 143

TABLE OF CONTENTS

Page

Table of Figures v

Preface. vi

Acknowledgements vii

PART I. THE CONCEPT OF COMPETENCY BASED EDUCATION

Overview 1

Chapter 1. Competency Based Education And The Problem Of Definition 2

The Meaning Of Competence 2
The Meaning Of Competency Based Education 3
Concepts And Practices Related To Competency Based Education 10
A Formal Definition Of Competency Based Education . . . 11
The Implementation Of Competency Based Education, 1975 . 12
The Implementation Of Competency Based Teacher Education, 1975 13

Chapter 2. An Operational Definition Of Competency Based Education 18

The Defining Characteristics Of Competency Based Education 18
Enabling Characteristics Of Competency Based Education . 21
Unique Characteristics Of Competency Based Education . . 22
Notes On A Model Of Competency Based Education 24
Notes On "Partial Models" And "Approximate Programs" Of Competency Based Education 25

Chapter 3. Assumptions Underlying Competency Based Education 27

Assumptions Related to the Defining Features of Competency Based Education 28
Assumptions Related to the Enabling Features of Competency Based Education 37
Some Things Competency Based Education Does Not Assume . 39

PART II. A FRAMEWORK FOR IDENTIFYING PROGRAM OPTIONS

Overview. 43

An Introduction to the Framework. 44
Decisions About the Outcomes of Schooling to Be Achieved. . . 45
Decisions About Outcome Evaluation and Certification. 48
Decisions About the Design and Operation of Instructional Programs 57

Table of Contents (Cont'd.)

Page

Decisions About Personalizing The Instruction-Learning-Evaluation Process 60
Decisions About Improving The Instruction-Learning-Evaluation Process 63
Decisions About Managing the Process of Schooling. 63

PART III. PATTERNS AND CONTEXTS: PROGRAM VARIATIONS THAT ACCOMMODATE DIFFERENCES IN COMMUNITIES AND SCHOOLS

Overview 65
Three Illustrative Models of Competency Based Education. 66
Primary Variations Within Models That Have Impact On The Nature and Cost of Schooling 69
Secondary Variations Within Models that Impact The Nature and Cost of Schooling 75
The Illustrative Models In Retrospect. 78
Additional Sources of Variation Within Competency Based Programs That Impact the Nature and Cost of Schooling. 80
The Concept of Alternative Models of Competency Based Education in Perspective 82

REFERENCES. 83

APPENDIX: AN ANNOTATED BIBLIOGRAPHY ON COMPETENCY BASED EDUCATION. . 88

TABLE OF FIGURES

Page

Figure 1

The model of a Competency Based Instruction System as depicted by Glick, Henning and Johnson (1975) 4

Figure 2

The self-renewing cycle of a systematic approach to instruction and instructional improvement 7

Figure 3

A representation of Howsam's three-level framework for viewing competency based education 9

Figure 4

A framework for identifying alternative CBE programs 44

Figure 5

The complexity contributed to program operation in community and school oriented models of CBE as a result of outcome definition 70

Figure 6

The complexity contributed to program operation in community and school oriented models of CBE as a result of evaluation and certification procedures linked to competency demonstration 71

Figure 7

The complexity contributed to program operation in community and school oriented models of CBE as a result of the instructional programs linked to competency acquisition . . . 72

Figure 8

The complexity contributed to program operation on community and school oriented models of CBE as a result of the extent to which the instruction-evaluation process is personalized . . 73

Figure 9

The complexity contributed to program operation on community and school oriented models of CBE as a result of the extent to which program adaptation-improvement activities are pursued . 74

TABLE OF FIGURES
(continued)

Page

Figure 10

The complexity added to program operation in community and school oriented models of CBE as a result of procedures followed in establishing the outcomes desired from schooling . . . 75

Figure 11

The complexity added to program operation in community and school oriented models of CBE as a result of the involvement of students and members of a community in the design and operation of schools 76

Figure 12

The complexity added to program operation in community and school oriented models of CBE as a result of attempting to manage such programs through administrative decisions that are open and data dependent 77

Figure 13

The complexity added to program operation in community and school oriented models of CBE as a result of attempting to govern such programs through policy decisions that are open and data dependent 77

Figure 14

The complexity of program operation projected for community and school oriented models of CBE 79

PREFACE

In this monograph the authors have attempted to give meaning to the concept of competency based education (CBE) when applied to elementary and secondary schools. An effort has been made to identify the defining characteristics of competency based education, its enabling characteristics, and its unique characteristics; and to spell out the assumptions and rationale underlying the competency based education movement. An effort has also been made to differentiate competency based education from related educational developments; for example, mastery learning and performance based learning, and at the same time to show how CBE incorporates these developments. Finally an effort has been made to spell out alternative models of competency based education and to establish frameworks for making decisions about the design and implementation of competency based programs.

In all this we have been on essentially uncharted ground. Work in the area of competency based teacher education has helped identify many of the critical issues, and has provided a language for many of the concepts that have evolved. In addition to drawing upon the work that has been done in teacher education, we have relied heavily on the fledgling literature in competency based education. Most importantly, however, we have relied on the ideas shared in a three-day conference conducted by the Northwest Regional Educational Laboratory. The aim of that conference was to identify and clarify the issues involved in competency based education as it applies to schools. The tentative definitions and agreements reached during the course of the conference constitute much of the conceptual structure reflected in the monograph.

This draft of the monograph is a working draft. As yet it has been reviewed only by project staff. Plans calls for a broad review of the document, however, and for its evolution through at least one additional draft. Through the course of this review and reformulation, many of the concepts now advanced will be refined or simply discarded, and others will emerge and be developed. The organization of the monograph undoubtedly will also change. It is hoped, however, that what has been written will provide a useful basis for informed and constructive reviews.

The concept of competency based education is complex, and thus difficult to define and describe, but there is contained in the concept a vision of an approach to schooling that may in time permit schools to be able to do what they have long been designed to do. It is this promise of competency based education that has prompted the monograph to be written.

ACKNOWLEDGMENTS

The authors wish to acknowledge a number of sources for the ideas expressed in this monograph. A recent conference sponsored by the Northwest Regional Educational Laboratory's Oregon Competency Based Education Program provided much relevant input. Conference participants included Walter Hathaway, Jack Knapp, Allan Olson, Barbara Lasser, Stephen Murray, and Sharon Owen from the Program staff; Harmon Zeigler from the Oregon Research Institute and John Packard from the Center for Educational Policy and Management, University of Oregon; Don Egge and Mary Hall from the Oregon Department of Education; Paul Cawein and William Spady from the National Institute of Education; Gary Knox from the Salem, Oregon Public Schools; Richard Hersh from the University of Toledo (currently on leave at Harvard University and the Ontario Institute for Studies in Education); and Del Schalock from the Teaching Research Division, Oregon State System of Higher Education. Particular contributions of the various participants in the seminar are noted in the monograph.

Equally important as a contributor to the ideas expressed are the newly adopted Minimum Standards for Elementary and Secondary Schools in Oregon. The Standards have contributed significantly to the conceptual and theoretical structure of this document.

A third major source of information has been the literature and experience of competency based teacher education (CBTE). Many of the concepts expressed in the monograph have counterparts in the literature on competency based teacher education, especially the literature that relates to the model of CBTE that has been implemented in Oregon and the Northwest. Many of the concepts presented in the monograph have already been tested within the context of CBTE.

We acknowledge our intellectual dependence on these various sources, and extend our gratitude accordingly.

H.D.S.
W.G.S.
W.E.H.

PART I

THE CONCEPT OF COMPETENCY BASED EDUCATION

OVERVIEW

Part I defines competency based education (CBE), makes explicit the assumptions on which it rests, and traces the concepts and practices from which it has emerged. CBE is defined both formally and operationally, and the concept of alternative, partial, and approximate models of CBE is examined. The parallels between competency based education and competency based teacher education are addressed.

In defining competency based education, attention is drawn to the variety of meanings that have been attached to the concept, and, more fundamentally, to the meaning of competence. The formal definition proposed for competency based education is

> "...a process that facilitates, with a known degree of effectiveness, the attainment by learners of a specified level of performance on desired outcomes, including the ability to perform tasks related to success in job or life roles."

The operational definition proposed consists of a set of defining characteristics, a set of enabling characteristics, and a set of unique characteristics.

After a review of the assumptions underlying these characteristics, Part I closes with a review of some things CBE does not assume.

CHAPTER I

COMPETENCY BASED EDUCATION AND THE PROBLEM OF DEFINITION

In a discussion of competency based education, two definitional questions arise: what is the meaning of competence, and what is the meaning of competency based education. In the pages that follow both are defined in general terms, and are referenced against related concepts in public schooling and teacher education. An operational definition of CBE is presented in Chapter 2, and alternative models of CBE are examined in Part III.

The Meaning of Competence

In everyday, man-on-the-street terms, competence signifies "the ability to do something well." Ordinarily the "something" refers to a job or a complex task--for example, the ability to manage a business or a farm; the ability to function as a scientist or a surgeon; the ability to play tennis or chess. This everyday use of the term is consistent with its dictionary definition: "Means sufficient for the necessities of life; fitness". Syn: Able, sufficient (Webster's Seventh New Collegiate Dictionary, 1971).

Unfortunately, the relation to "the necessities of life" or the life roles aspect of this general definition of competence has not been consistently maintained by persons working in competency based education. As applied in CBE, competence has often been equated with performance, without regard for what is to be performed. This has led to the designation of essentially any desired learner outcome as a "competence." Such an approach to the definition of competency can be thought of as the "if x can do y, where y is any desired outcome of schooling, then x is competent" approach. Accepting such a definition of competency leads one to view competency based education as little more than performance based education or mastery learning, as discussed in the next section. Defining competence as synonymous with any performance affected by schooling, therefore, robs competency based education of its uniqueness.* It ignores the public and educational forces seeking to give education accountability, and to invest high school graduation with meaning by insisting that at a minimum, graduates demonstrate abilities to function in key life roles outside of school--however far their learning potential carries them in the attainment of other traditional and non-traditional goals of schooling.

Gale and Pol (1975) support the inclusion of the notion of relevance to functioning effectively in life roles outside of school in the definition of competency. After consulting a number of dictionaries, within a wide variety of disciplines and in five different languages, these authors concluded that a remarkably consistent and commonly held set of definitions

*See Chapter 2 for a more extensive discussion of the unique elements of CBE.

exist with respect to the term. They summarize their conclusions as follows:

> Competence, by definition, is tied to a position or role. The ligatures binding the two are abilities, knowledge, skills, judgment, attitudes and values required for successful functioning the position or role. That is, possessions of the critically required abilities, knowledge, judgment, skills, attitudes and values--and proficient use of the same--is what yields competence in an individual.

Gale and Pol define competence formally as "...the quality of being functionally adequate in performing the tasks and assuming the role of a specified position with the requisite knowledge, ability, capability, skill, judgment, attitudes and values." (p. 21) Competence, then, may be conceptualized in terms of several interrelated parts. A competence to be demonstrated is stated in general terms, and referenced to a particular role or position. As such, the term competence is not used synonymously with the knowledges, skills, and attitudes that are exercised to perform competently. These should be treated either as enablers of competence, or as other kinds of more general outcomes desired of education.

Because it includes the dimension of relevance to functioning in life roles, the definition of competency proposed by Gale and Pol and adopted here opens the way to the unique and challenging definition of competency based education developed in the following sections.

The Meaning of Competency Based Education

As noted in the previous section, one view of CBE begins by defining competence as equivalent to the achievement of any specified outcome in education. From this point of view, competency based education is essentially equivalent to performance based education or mastery learning.

Writing from this orientation, Houston and Howsam (1972) identified the essential characteristics of competency based instruction:

> Two characteristics are essential to the concept of competency-based instruction. First, precise learning objectives--defined in behavioral and assessable terms--must be known to learner and teacher alike. Competency-based instruction begins with identification of the specific competencies that are the objectives of the learner. These objectives are stated in behavioral terms. Means are specified for determining whether the objectives have been met. Both learner and teacher are fully aware of the expectations and of the criteria for completing the learning effort. From a variety of alternative learning activities, those most appropriate to the specific objectives are selected and pursued. In contrast to much traditional instruction, the activities are viewed as

means to a specific end. Neither teacher nor learner is permitted to view the activities as the objective of the learning experience.

The second essential characteristic is accountability. The learner knows that he is expected to demonstrate the specified competencies to the required level and in the agreed-upon manner. He accepts responsibility and expects to be held accountable for meeting the established criteria. (p. 4)

More recently (1975), Glick, Henning and Johnson detailed this process, retaining its essential features:

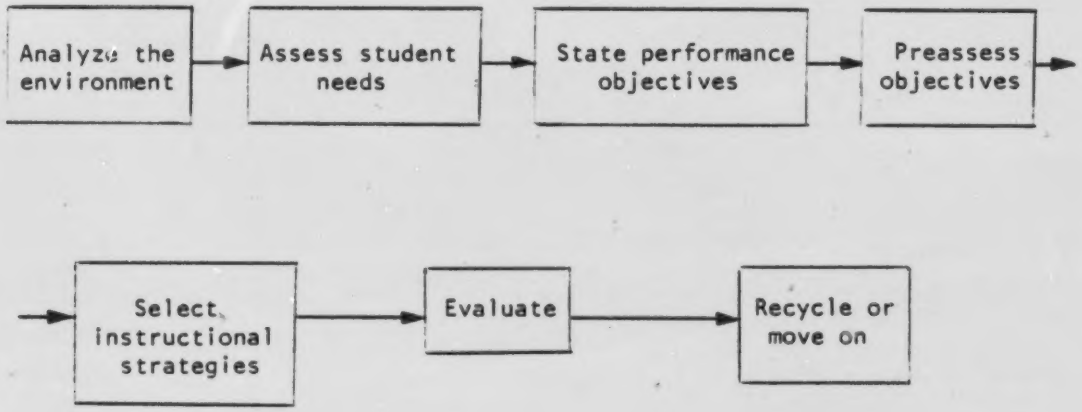

Figure 1. The model of a Competency Based Instruction System as depicted by Glick, Henning and Johnson (1975).

Three additional features of competency based education and teacher education are seen by most writers as accompanying this essential mastery learning model. These are (a) a criterion-referenced approach to the measurement of learning outcomes; (b) the individualization or personalization of the instruction-learning process; and (c) the viewing of the instruction-learning process for each student, and of the instructional program as a whole, as reflecting a "systems" model. Each of these concepts is dealt with separately in the paragraphs that follow. When added to the basic mastery learning model, they represent an approach to the instruction-learning-evaluation process which is markedly different from that typical in today's schools. Glick, Henning and Johnson (1975) have summarized these differences.

CHARACTERISTICS OF INSTRUCTION, LEARNING AND ASSESSMENT IN TRADITIONAL SCHOOLS	CHARACTERISTICS OF INSTRUCTION, LEARNING AND ASSESSMENT IN COMPETENCY BASED SCHOOLS
1. The content of the curriculum is selected by the teacher and presented to the students.	1. The content to be learned is developed and sequenced by the teacher in terms of competencies to be mastered by the student. The individual student may, however, be assigned certain competencies to develop, or he may select competencies of personal interest.
2. All students are expected to learn the key concepts and facts presented within the same time frame and using the same basic materials.	2a. The student learns at his own rate and moves on to new materials only when he has mastered the competencies in the unit preceding.
	2b. Based upon individual learning style, the student is assigned, or self-selects, materials and instructional settings to develop each competency.
3. Objectives are general in nature and meant to guide the teacher.	3. Objectives are stated in performance terms, written in language that the student can understand, and shared with the student.
4. Evaluation is norm-referenced. Individual student performance is measured against the group.	4. Evaluation is criterion-referenced. Individual student performance is measured against the criteria stated in the objectives.
5. Teaching is applied in a uniform manner to all students.	5. Teaching is varied according to the needs and interests of the individual student.

Criterion-referenced evaluation. The concept of criterion-referenced measurement (CRM) has accompanied the competency based education movement from the outset. In part this stems from the close association of CRM with mastery and performance learning; in part with the growing disenchantment

of parents and educators with traditional, norm-referenced approaches to the measurement of achievement; and in part with the logical demands of the concept of competence, and the need to recognize the existence of competence through some specific means of certification. If an educational program is to promote student competencies, and if the program is to attest to each student's competence, criterion-referenced measurement seems quite appropriate. As Houston and Howsam have put it

> "...the focus for evaluation or accountability (in competency based education) is shifted to the individual's attainment of a set of objectives. He no longer is judged by his standing relative to the performance of a group or of a test population. In other words, this approach is criterion-referenced, in contrast to the norm-referenced approach that has been emphasized throughout much of our educational history (particularly during the life of the testing movement). The learner's achievement is compared with the stated objectives and the specified criteria; the achievements of other students are not relevant to the evaluation." (p. 4)

The Personalization of the Instruction-Learning Process.

All writers on competency based education and competency based teacher education have added to the mastery learning model the concept of individualized or personalized instruction. In the narrowest sense, this means that time is treated as a variable in the achievement of the outcomes desired from instruction (Eisele and Halverson, 1975). In the broadest sense, it includes an option for students to negotiate the outcomes desired from instruction, the indicators by which the achievement of outcomes are to be evaluated, and the learning activities to be pursued in working towards negotiated outcomes (Schalock and Garrison, 1972).

The addition of time as a critical variable in the instruction-learning process is a necessary accompaniment to the mastery learning model: if specified outcomes are to be achieved by students who vary widely in ability and background, varying amounts of time must be allowed for outcomes to be met. The broader interpretation of individualizing or personalizing instruction recognizes that individual differences in students extend to the need for variation not only in time, but in learning outcomes, and in learning activities that lead to the achievement of outcomes. It also recognizes a philosophic commitment to the importance of nurturing, as well as building upon individual differences in instruction; to the need to combat politically the perception of competency based education as a mechanistic system that produces students who know the same things and act in the same ways; and to the recognition that defining competence in terms of the performance of tasks in job- or life-related roles requires that competence be demonstrated idiosyncratically, and that instruction be sensitive to individual differences.

Viewing the Instruction-Learning Process, and the Program Improvement Process, According to the Principles of Systems Theory

For a wide variety of reasons, the mastery learning model central to competency based education has, from its inception, been viewed within the broader

framework of systems theory. In part this reflects an interest in systems theory held by educators in the late 1960's who viewed it as a way of improving the educational process. In part it reflects the recognition within the mastery learning model of the need for students to recycle through as many learning experiences as needed until mastery is reached. And in part it reflects the growing sophistication in the rationale and methodology of program evaluation procedures that view at least the formative evaluation process as one that facilitates the continuous adaptation and refinement of an instructional program on the basis of systematic feedback on program effectiveness. This process of feedback makes the competency based approach to education dynamic, and open to rational change. As such it is one of the most basic and most powerful characteristics of the competency based movement. The general representation of this proces is shown in Figure 2.

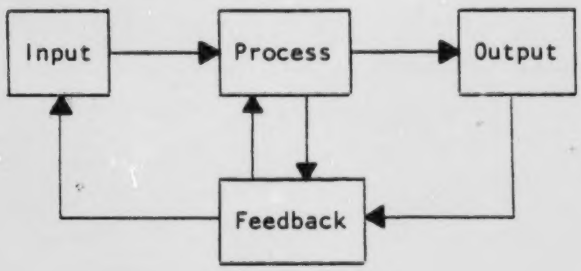

Figure 2. The self-renewing cycle of a systematic approach to instruction and instructional improvement.

Essentially all writers on competency based education and teacher education agree on these basic characteristics of the concept. There is less general agreement regarding a number of other characteristics associated with competency based education, however. These include such concepts as task analysis, the modularization of instruction, data based decision making, community involvement in goal setting and instruction, a consortium based mode of operation, use of instructional technology, and use of goal based management and resource allocation procedures. As with the basic characteristics, different writers have emphasized various concepts in different degrees, and with differing views regarding how they interact with the basic features outlined above.

These differences have added an element of uncertainty, sometimes bordering on confusion, regarding what is meant by competency based education. This has led Howsam to propose a three level framework for viewing the nature of CBE. Howsam's framework is composed of three concentric circles. The inner circle represents the competency based instruction-learning process; the intermediate circle represents the criterion-referenced, personalized and systematic design properties of the model; and the outer circle represents such characteristics as goal setting procedures, the joining of institutions and agencies for the operation of a competency based program, and the use of goal based management and resource allocation procedures. Howsam identifies these three circles, respectively, as the essential features of

CBE, the enhancing features of CBE, and the enabling features of CBE. His three level representation is shown schematically in Figure 3. Liberal use is made of this framework in proposing a slightly different view of the defining features of CBE in Chapter 2.

While Howsam's conception of competency based education reflects accurately the position of most writers in the area of competency based education, and by most persons responsible for the operation of competency based education and teacher education programs, it does not deal squarely with the issue of competence as it has been proposed in this monograph. Howsam's conception, like that of Glick, Henning and Johnson, is essentially a mastery learning conception rather than a competency conception. Howsam and others would argue that the mastery learning framework does not preclude the kind of learning outcomes called for in a competency based framework. While this is true, the mastery model does not direct attention to such outcomes, and as a consequence, most competency based education and teacher education programs up to now have defined competencies to be demonstrated largely in terms of the knowledge and skills merely thought to be needed to perform job- or life-role related tasks. While there is nothing inherently wrong with such an approach, it limits the kinds of evidence available for certifying the ability to perform role-related tasks. Moreover, it does not force programs to face assessment and organizational demands that come with taking the proposed definition of competence seriously. This occurs even though the knowledge and skills to be mastered may be derived systematically from an analysis of the tasks to be performed in a job or life role.

Fortunately, some existing models for viewing competency based education and teacher education are consistent with the proposed interpretation of competence. Programs reflecting these models have been implemented, or are in the process of being implemented. These are the ComField Model for the preparation of teachers (the acronym stands for competency based and field centered) that has been developed in the Northwest and tested most thoroughly in Oregon (Schalock and Hale, 1968; Schalock, Kersh and Horyna, 1970; Schalock, Kersh and Garrison, 1976; Schalock, 1976; Garrison and Hiatt, 1976); and the Oregon Model for Competency Based Education in Elementary and Secondary Schools (Hall, 1975; Fairbanks and Hathaway, 1975). Both the ComField Model and the new Standards for schools in Oregon interpret competence to mean the performance of tasks in job- or life-related roles, without in any way limiting schools or students to the attainment of a minimum, essential set of outcomes. Both have also adopted a set of operational characteristics that cause teacher education and schooling in Oregon to reflect essentially all of the characteristics outlined in the Howsam framework. As a consequence of the meaning given competence, however, both teacher education programs and schools in Oregon reflect subtle but functionally important differences from the Howsam framework. These differences constitute the basis for the formal definition proposed for competency based education in this monograph (see pp. 11 and 12), and the basis for the operational definition proposed in Chapter 2.

The essential features of the ComField Model are outlined on pp. 16 and 17. The Fairbanks-Hathaway document has been prepared in conjunction with the present monograph and should be read in conjunction with it.

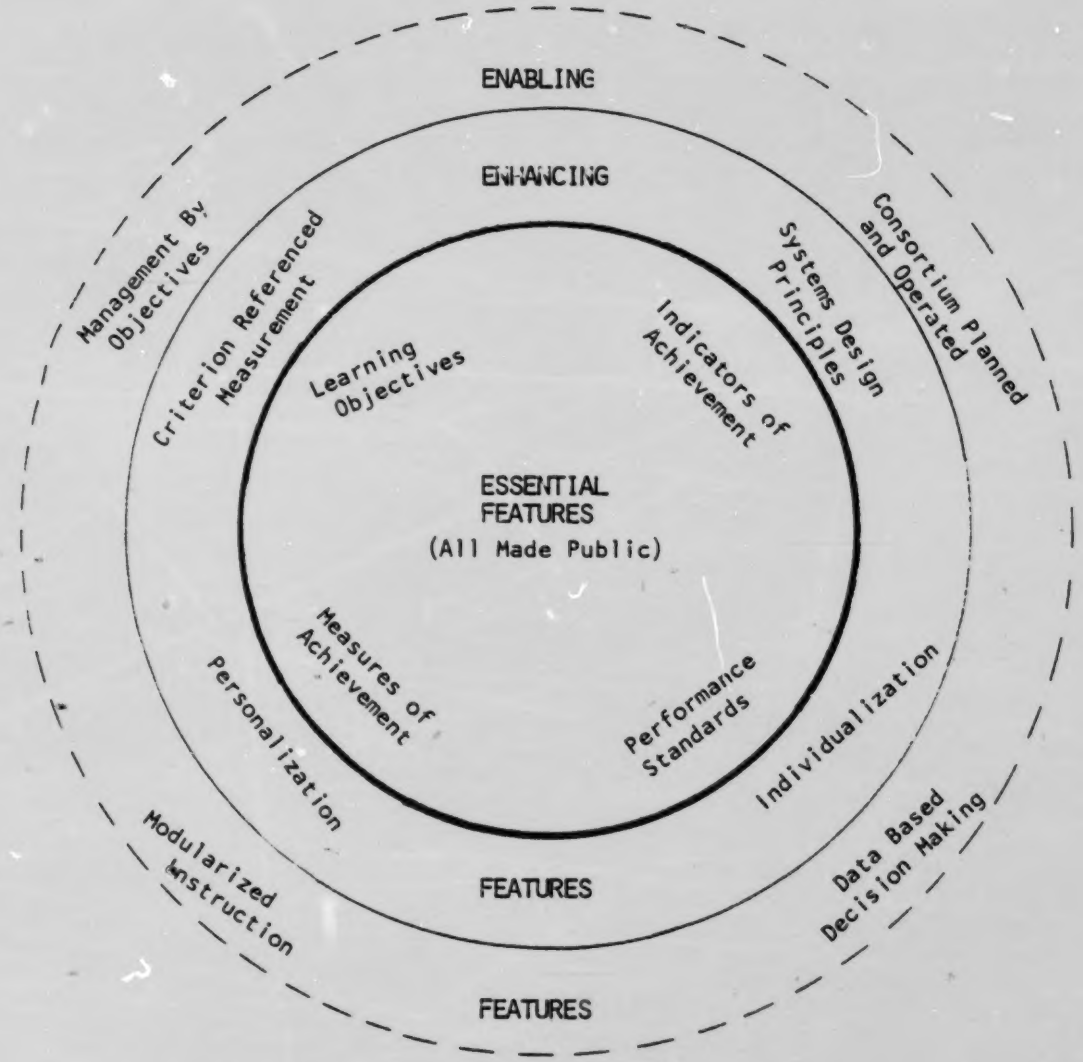

Figure 3. A representation of Howsam's three-level framework for viewing competency based education.

Concepts and Practices Related to Competency Based Education

A number of concepts and practices that are relatively well known in education today, and that are central to the concept of competency based education, have already been discussed. These include the concepts of mastery learning, performance based education, the individualization or personalization of instruction, the recognition of time as a critical variable in learning, the use of criterion-referenced measures to assess learning outcomes, the application of systems theory in the design and operation of education programs, goal based management or management by objectives, the allocation of resources on the basis of objectives (program planning and budgeting systems), and the development and operation of educational programs through a consortium of institutions and agencies. Other concepts and practices that assume a central place in competency based education, either as precursors or closely related developments, include the behavioral objectives movement; the programmed instruction movement; the modularization of instruction; the move to involve parents and members of a community in program planning and evaluation; the idea of community based education; the idea of domain-referenced assessment as an extension of criterion-referenced assessment; the concept of functional literacy; task analysis techniques as a means of identifying the knowledges and skills assumed to be needed to perform a task; the provision of feedback in relation to performance as a critical variable in learning; aptitude-treatment interaction research as a basis for improving the instruction-learning process; individually guided instruction; continuous progress learning; and the variety of meanings given to the concept of school accountability. The manner in which competency based education accomodates these various concepts is dealt with in Chapter 3, and the chapters appearing in Part III of the monograph.

By incorporating these various concepts and practices, competency based education simultaneously provides a much needed service to education and an invitation for the educational community to be suspicious of the idea. The service comes from defining an approach to education that makes integrated use of the best that education has to offer at this time, both conceptually and procedurally. Within the context of CBE, for example,the ideas of mastery learning, criterion-referenced measurement, and the personalization of the instruction-learning process become not only compatible but necessary parts of the whole. The basis for suspicion comes with the presumption that such a list of concepts and practices can be integrated into a sensible whole. While such a response is understandable, and in general should be encouraged, the position taken in the present monograph is that CBE does make integrated sense of such a list, and in fact puts these various concepts and practices together in such a way that the potential of competency based education far exceeds the potential of any one of the concepts and practices that it comprises.

In this regard, one particularly attractive feature of the competency based movement is its responsiveness to the concept of school accountability, and the interaction of school accountability with accountability on the part of students and teachers within schools. The particular mix CBE gives to the ideas of mastery learning, the personalization of instruction and assessment within the context of mastery learning, and the press for at least a minimum set of outcomes of schooling that are

tied directly to performance in out-of-school contexts provides the basic ingredients needed for an approach to accountability in schools. When these are combined with the concepts of program adaptation and improvement through the application of systems design principles, and the linking of resources to outcomes and program improvement activities identified on the basis of outcome achievement, CBE is able to deal with the various aspects of accountability directly and effectively.

A Formal Definition of Competency Based Education

In its simplest form, using terms only suggestive of its full meaning, CBE might be defined as

> "...a process that facilitates, with a known degree of effectiveness, the attainment by learners of a specified level of performance on desired outcomes, including the ability to perform tasks related to success in job or life roles."

Many things are not made explicit by such a definition. For example, How are the competencies to be attained by learners who have widely varying interests and abilities? What tasks are to be performed for what job- or life-roles? Where and how is the ability to perform such tasks to be achieved? What is to be accepted as evidence of the ability to perform such tasks? How is the demonstration of such competencies to be certified? How are such competencies to be integrated in the total goal structure of the schools?

But leaving such questions unanswered is probably appropriate. Matters of this kind should be determined by individual communities, and worked out between individual students and faculty members within schools.

By contrast, however, many things are made specific by this definition. It signals clearly, for example, that CBE is a continuously adaptive process with known reliability in promoting desired learning outcomes. It signals that at least some of these outcomes pertain to the students' ability to perform tasks that are defensibly related to out-of-school job- or life-roles. And it signals that the process be continuously adapted on the basis of the success with which students achieve the outcomes desired.

All of these implications reflect the total dependence of such an approach to education on the systematic collection and use of information on the effectiveness of school programs (the success of all students in each program), and the systematic collection and use of information on the success of each student in each program in which he or she is enrolled. They also imply a commitment to successful learning on the part of all students in a school, not just a high percentage of students. As one superintendent of a large urban district recently put it: "Educators have never accepted the responsibility of achieving success with every student. That's a tall order. And I believe the only way we can develop that institutional frame of mind is by saying that's exactly what we are going to do" (Robert W. Blanchard, Superintendent, Portland Public Schools, in: "Change and Challenge for Education in the 1970's", p. 2).

Again, how all these things are to be done is a matter for individual communities and schools to determine. The power of the definition rests

in the fact that if they are done, by whatever means, an educational program will be competency based in the fullest sense of the term. The operations outlined in Chapter 2 are an extension of this formal defintion, and represent a first approximation to the various processes that must be carried out to implement such an approach to education.

The Implementation of Competency Based Education, 1975

For all the interest in competency based education, there are only a few known applications of the concept to the design and operation of ongoing school programs. The Diocesan and public schools of Toledo, Ohio, working in cooperation with the College of Education at the University of Toledo, have managed to implement alternative competency based programs that reflect the Ohio legislature's recent mandate to increase systematic educational planning at the district level (Utz, et al., 1974). The Palo Alto public schools are also in the process of implementing a CBE approach to the instruction-learning process (personal communication), and all school districts in Oregon are proceeding to implement the competency based approach to elementary and secondary education that is now required in the state (Fairbanks and Hathaway, 1975).

There seems to be more involvement with the idea of competency based education at the level of state departments of education and state legislatures than at the level of individual districts or schools. In addition to Oregon, at least two other states, California and Florida, have adopted proficiency examinations as a basis for high school graduation. Pennsylvania is in the process of testing a series of community centered approaches to competency based education that are being examined as possible models through which to improve the quality of education within the state as a whole.

In these and other states--such as Hawaii, Minnesota and Illinois--competence is being defined in applied performance terms. As a consequence, models of competency based education are being tested that go beyond a traditional mastery learning model. Each state differs, however, in its particular interpretation of the meaning of competence; therefore, a variety of competing models are in fact being implemented.

A number of other states are actively discussing the whole idea of competency based education, but are doing so thus far primarily in conjunction with the development and implementation of statewide assessment programs. New York, Georgia, Michigan, Alaska and Washington are in this stage of development. Alaska is also in the process of identifying districts that would be willing to serve as test sites for the implementation of a competency based approach to education tailored along the lines of the program adopted in Oregon.

It is too early to tell whether the idea of competency based education will be a lasting one, or whether it too will be seen in a few years as no more than a passing fad. It is too soon to tell whether competency based education, once implemented, will make a difference in the quality of education children receive. The breadth of the concept, however, its apparent responsiveness to the various pressures coming to bear on public

education, and its mechanisms for adaptation and change suggest that it will be longer lived than many other innovations in education.

On the other hand, the comprehensiveness of the idea, and the nature of its demands on the organization and operation of schools, may defeat it before it receives a fair test. No schools in Oregon, for example, as yet completely reflect all the characteristics called for in the new Minimum Standards. This should not be taken to mean, however, that schools will be unable to implement the Standards, or unwilling to try to implement them. The Standards have been in existence for only a year, and the schedule for their implementation does not go into full effect until 1980. On the encouraging side, most schools in Oregon have been able to implement to a reasonable degree the high school graduation requirements that are now a part of the Standards (adopted by the state in 1972) and that are to apply to the graduating class of 1978. While the competencies to be demonstrated are in some cases less powerful than desired, and the measures of competence are in some cases relatively unsophisticated, an approximation to both exists in essentially all districts in the state. Increasingly, the instructional programs, record keeping systems and reporting forms needed to support such an approach to graduation are becoming well established.

As yet there is no reason to believe, based on Oregon's experience with competency based education, that anything other than positive benefits will be forthcoming. To be sure there has been and will continue to be frustration, uncertainty, and unrelenting demands on the time and energy of school personnel to implement such programs, but most educators engaged in the process are of the opinion that it has had beneficial effects on their communities, faculty, and students. The long term test is yet to come, but with the implementation of the NIE sponsored program of research and development, of which this monograph is a part (The Oregon Competency Based Education Program), the nation will soon have reasonably complete and unbiased evidence on both the short and long term effects of the Oregon experiment in competency based education.

As in the case of Oregon, the experience of California, Florida and Pennsylvania is too limited as yet to draw conclusions as to the consequences of their respective experiments in CBE, or whether those experiments are likely to extend and flourish with time. Because this is the first year for the administration of the proficiency examination in California (it is administered twice each year, once in December and once in June), no evidence is available on how well students do on the examination or how it predicts success in out-of-school settings. The National Institute of Education is also following the results of the California experiment carefully, however, and will be in a position to report the results of that experiment. At approximately the same time, they will be able to report the results of the Oregon experiment.

The Implementation of Competency Based Teacher Education, 1975

The concepts of competency based education have been drawn largely from the literature of competency based teacher education. In contrast to competency based education, competency based teacher education is well established as a concept and is being implemented in one form or another

in the majority of teacher education institutions in the nation. It is also a concept that has had a longer existence than competency based education, and reasonably well coordinated demonstration and dissemination activities designed to inform teacher education personnel about it. For all of these reasons there is a relatively large literature collection on competency based teacher education (see Appendix A,IV). More important, a number of alternative models of CBTE have been developed, and are relatively well known (see, for example, the University of Georgia, the University of Houston and the University of Toledo Models, as well as the ComField Model); a number of model based programs have been in operation for a long enough period of time that evidence as to costs and benefits is beginning to emerge (Hite, 1974; Schalock, Kersh, and Garrison, 1976); and descriptions that document the nature and operation of several such programs are now available (Dickson, et al., 1974; Joyce et al., 1975; Schalock, Kersh and Garrison, 1976). The origin of competency based teacher education is well established, and can be clearly fixed in time. In 1968, the U.S. Office of Education funded ten institutions to develop new models for the preparation of elementary school personnel, and though the language of competence did not appear in all 10 of the models that emerged from the effort, the models as a group soon became identified as performance based or competency based models (Burdin and Lanzillotti, 1969).

Generally, these models reflected in one form or another the characteristics of competency based education identified in the three level schema of Howsam (see p. 9). As indicated earlier, however, only the model developed in the Northwest (the ComField Model) contained from the outset a definition of competence consistent with the definition proposed in this monograph.

The first phase of the elementary models program covered a ten month period, yielding ten paper models of how elementary teacher preparation programs might be structured and operated to be more effective and more responsive to the demands of the teaching profession than they had in the past. The second phase of the models program followed a year or so later with the extension and refinement of the initial models, the development of detailed plans for implementing model based programs, and the provision of cost estimates for carrying out the implementation plan. This phase of the program also covered a ten month period, and yielded ten implementation plans and accompanying cost estimates.

When initially planned by the U.S. Office of Education, the elementary models program was designed to support the development and operation of a number of model based programs over a sufficiently long period of time to permit firm conclusions as to the costs and benefits involved in such programs. Unfortunately, as is often the case with well laid federal plans, funding sources did not materialize, and the U.S. Office of Education, under the aegis of the National Center for the Improvement of Educational Systems, was able to provide only minimal support for those involved in implementing model based programs. Specifically, money was made available to each institution that had developed one of the original

models (these institutions came to be known as CBE Centers) to inform others about the models, and to maintain contact with one another while implementing, refining, and extending the basic concepts in the models.*

A number of other activities were sponsored by the U.S. Office of Education to test and disseminate the ideas about competency based education that were contained in the elementary models. These included:

- Funding the American Association for Colleges of Teacher Education (AACTE) to establish its Committee on Performance (Competency) Based Teacher Education to investigate issues relating to CBTE and disseminate information about CBTE in written form to the teacher education community;

- Funding the AACTE for the conduct of workshops throughout the nation on CBTE;

- Funding the Multi-State Consortium for Competency Based Teacher Education as a means of informing state departments of education about the movement, and to assist them in implementing the principles of CBTE on a statewide basis if so inclined; and

- The decision on part of the Teacher Corps to require all of the preparatory programs it supported to be competency based in mode of operation.

Out of these various activities have come the AACTE monograph on performance based teacher education; the monthly newsletter of the Multi-State Consortium on developments within CBTE; and numerous publications supported by the Teacher Corps; for example, a report of follow-up

---

*This grant support was maintained over a period of three years (with the assistance of the Teacher Corps), and provided the means by which much of the present literature on competency based teacher education was produced. Major books and monographs that have grown directly or indirectly out of the work of the elementary models directors within the Centers for Competency Based Education include the 1970 Spring issue of the Journal of Research and Development in Education devoted to a description of the elementary models and their feasibility of implementation; Competency Based Teacher Education: Progress, Problems and Prospects (edited by Houston and Howsam, 1972); the Florida Catalog of Teaching Competencies (edited by Dodl, 1972); Competency Based Teacher Education: Problems and Prospects for the Decade Ahead (edited by Anderson, DeVault and Dickson, Vol. 1, 1973); Competency Based Teacher Education: A Systems Approach to Program Design (edited by Cooper, Weber and Johnson, Vol. 11, 1973); The Power of Competency Based Education (edited by Rosner, 1973); Exploring Competency Based Education (edited by Houston, 1974); Competency Assessment, Research and Evaluation (edited by Houston, 1975); Closing the Knowledge Gap: CBTE Programs As the Focus of and Context For Research in Teacher Education (Schalock, 1975); Governance by Consortium, (edited by Hansen, 1975); and Criteria for Evaluating Competency Based Teacher Education Programs (edited by Houston, Johnson and Burke, 1975).

research on the effectiveness of Teacher Corps training programs (Marsh, 1974) and a report on the utility of CBTE practices when applied to a multicultural education context (Grant, 1975).

In combination, the work of the elementary model directors within the Consortium of CBE Centers, and the documentation-dissemination activities of the agencies described above, have led to a remarkably quick diffusion of the concept of competency based teacher education within the teacher education community. Recent estimates of the extent to which the principles of CBTE are being adopted (Merrow, 1974) place the number of institutions attempting to implement CBTE at well above 50 percent, and the number of states using these principles as a basis for the approval of teacher preparation programs and/or the certification of education personnel, at approximately 40 percent (20 states by actual count). The chapter by Gage and Winne on Performance Based Teacher Education in the 1975 Yearbook of the National Society for the Study of Education provides an excellent review of the history and issues involved in CBTE.

In spite of the essentially unparalleled speed with which the idea of CBTE has spread throughout the profession, it needs to be pointed out that there are very few fully operational competency based teacher education programs in the nation today. No preparatory programs have transformed the entirety of their four year curriculum into a competency based mode of operation, and only a handful of institutions have translated the professional component of their programs completely into a CBE mode of operation. Other efforts to implement CBTE have tended to be pilot or experimental in nature, involving a course or cluster of courses within an established program, or the translation of segments of programs--for example, all clinical or school based experiences--into a CBTE mode of operation.

Given the reality of this still primitive level of implementation, the reader will quickly recognize that much of the literature about CBTE is based upon thinking about CBTE, rather than an involvement in CBTE based programs. While this need not invalidate the concepts that have appeared in the literature, so far as their application to competency based education is concerned, it does suggest they be viewed as tentative illustrations of solutions rather than actual, substantiated solutions.

Fortunately, the model of competency based teacher education that is most consistent with the model of CBE proposed in the present monograph has undergone reasonably extensive testing, and has been in place over a sufficient period of time that a first level analysis of the costs and benefits associated with it is now available. This is the ComField Model for elementary teacher education that was developed in the Northwest, and has been used as a guide to implementing competency based teacher education throughout much of the region. Model based programs are now operating at Western Washington State College, the University of Washington, Gonzaga University, the University of Idaho, and Oregon College of Education (OCE).

Being competency based and field oriented, these programs have been forced to face the instruction, assessment and certification demands that

are associated with the definition of competence suggested in this monograph, and all of the management demands that follow. As such, these programs become valuable sources of information for states and schools wishing to implement a competency based program of the kind being proposed.*

---

* A recently completed series of filmstrips describing the ComField Model and its implementation in the Northwest is available through the Region X Office of the U.S. Office of Education, Seattle, or the Teaching Research Division, Oregon State System of Higher Education, Monmouth, Oregon.

While the filmstrip series on CBTE in the Northwest will be helpful to states and schools wishing to implement CBE, a document that will be even more informative is the monograph describing the CBTE program at Oregon College of Education (Schalock, Kersh and Garrison, 1976) that is to be published in the AACTE series on competency based teacher education. The monograph provides the first analysis available of the costs and benefits associated with CBTE programs and provides an extensive description of the procedures that have been developed at OCE to assess the competence of teachers in ongoing school settings, to personalize the instruction and assessment process, to continuously evaluate and upgrade the program, to insure quality in the measures taken on the competence of teachers in the program, and the means by which data collected within the context of the program are used for purposes of research on program and teacher effectiveness. In combination with the description of operational CBTE programs that are available through the filmstrip series on CBTE in the Northwest, this monograph should prove to be a valuable resource for persons who wish to translate the principles of competency based education into programs at the elementary and secondary school level.

CHAPTER 2

AN OPERATIONAL DEFINITION OF COMPETENCY BASED EDUCATION

After reviewing the meaning of the term competence, and the practices and procedures that seem to define competency based education as it is now practiced, it has been proposed that competency based education be defined formally as

> "...a process that facilitates with a known degree of effectiveness, the attainment by learners of a specified level of performance on desired outcomes, including the ability to perform tasks related to success in job or life roles."

At first reading this definition appears to be consistent with the meaning given competency based education by Howsam (see pp. 7 to 9), but in fact there are subtle differences. The Howsam framework, for example, does not attend to the meaning that is to be given to the term competence; it does not attend to the full meaning that must be given to the personalization of the instruction-learning-evaluation process when competence is defined as "the ability to perform complex tasks;" and it does not treat as an essential characteristic of CBE the adaptive, corrective properties made possible by the implementation of systems design principles.

Given the formal definition that has been proposed, what are the processes that operationally define competency based education? Following the lead of Howsam, a three-level set of processes are proposed: those that constitute the <u>defining</u> characteristics of competency based education; those that constitute the <u>enabling</u> characteristics of CBE; and those that constitute the <u>unique</u> characteristics of CBE. These are discussed briefly in the pages that follow, and form the basis for a subsequent discussion of alternative and partial models of CBE given the operational definition proposed. The assumptions underlying the proposed operations are described in Chapter 3.

<u>The Defining Characteristics of Competency Based Education</u>

The formal definition proposed for competency based education presumes five interdependent processes as defining characteristics. Without reference to the specific content of a program, and without reference to how the various processes are interrelated, they are as follows:

1. A public declaration of the outcomes desired from instruction at all levels of schooling (district, building, course, individual learner), including outcomes that reflect the ability to function effectively in life roles outside of school, and the designation of a minimum set of these outcomes to be demonstrated in order to graduate.

2. A public declaration of the means by which the achievement of desired outcomes, and especially those that are

required for graduation, are to be evaluated and certified, including --

a. the kind of indicators that are to be accepted as evidence of outcome achievement;

b. how evidence of outcome achievement is to be obtained;

c. what is to represent an acceptable level of outcome achievement;

d. the procedures to be followed in judging performance in relation to outcome achievement;

e. how achievement in relation to desired outcomes is to be recognized and displayed.

3. The design and operation of instructional programs, at all levels of schooling (district, building, course, individual learner), that --

a. clearly link content and process to outcomes desired;

b. clearly provide alternative learning experiences for outcome achievement; and

c. clearly rely on performance in relation to established standards as a basis for program placement decisions, including program exit and certification decisions.

4. A set of publicly declared rules and procedures that permit the personalization of learning programs through --

a. an opportunity for students to negotiate

- outcomes to be worked toward
- indicators acceptable as evidence of outcome achievement
- procedures to be used in assessing outcome achievement
- standards of performance set for outcome achievement
- learning activities to be pursued while working toward outcome achievement
- learning environments within which to pursue outcome achievement, including choice of learning facilitators
- the time and number of demonstration attempts allowed for outcome achievement; and

b. the adaptation of all of the above to the learning strengths and weaknesses, styles and preferences of individual students and teachers.

5. A set of publicly declared rules and procedures for assuring the continuous adaptation and improvement of ongoing educational programs through the use of --

   a. formative and summative program evaluation data, including data on program costs and data on the appropriateness of outcomes desired;

   b. student performance data; and

   c. staff performance data, including data on the effectiveness of staff development programs.

These five processes are presumed to constitute the defining or essential characteristics of a competency based education program. A program missing any one of these processes would not be judged competency based.

In viewing these processes collectively, two features come into sharp focus: the extent to which competency based education makes public what is hoped to be achieved and what has been achieved, and the extent to which a competency based education program relies upon and makes use of data.

Both features have advantages and disadvantages so far as the operation of schools is concerned. Being public about what is to be achieved enables students and the patrons of a school to see whether the goals being pursued are the goals they wish to have pursued. It also permits students and faculty to clearly understand what is to be achieved and when it has been achieved. The disadvantages to being public about expected and achieved outcomes is the invitation it provides to endless debate about what these outcomes should be, and the means they provide for holding both students and schools responsible for the achievement of the outcome desired.

Operating educational programs on the basis of data about student performance, program effectiveness, and faculty effectiveness is also a two edged sword. On the one hand it provides a basis for decision making that is better than best guess, intuition, or impression. On the other it is a costly approach to the operation of schools, both in terms of the time and resources required to collect and summarize the data needed and to get it in a form that is useful to decision makers. Dealing with data that pertain to a particular decision can also be disruptive, and time consuming, and can make schools more vulnerable to their critics.

Be this as it may, a competency based mode of operation seems to imply that schools are to operate in an unusually public way and with an unusual dependence upon data for decision making.

The list of defining processes for competency based education has two other important features: the extent to which a CBE program is outcome oriented, and the extent to which it is tailored to differences among individuals and settings. Not only must the outcomes to be achieved through an educational program be identified, and the indicators to be accepted as evidence of outcome achievement agreed upon, instructional programs must be designed in terms of the outcomes that are to be achieved and

programs that are to be adapted or improved on the basis of evidence about the extent to which outcomes are achieved. Such an orientation, coupled with the public and data dependent orientation of such programs, makes the arena of competency based education markedly different from the approach to schooling found in most communities today.

By adding to this strong outcome orientation an equally strong commitment to the need for both students and faculty to adapt outcomes, indicators of outcome achievement, and learning activities designed to bring about outcome achievement to fit their own particular needs, abilities and learning styles, competency based education outlines not only an approach to education that is different from what now exists in most schools, but one that begins to approach what many would feel to be an impossibly idealistic approach to schooling. Best evidence from the arena of competency based teacher education suggests that such an approach to schooling is not an unattainable goal--even with the resources now available to schools.

Enabling Characteristics of Competency Based Education

While the five processes described above may represent the defining or essential characteristics of competency based education, they constitute neither an exhaustive nor a sufficient set. There remain the questions, for example, of how the outcomes desired from schooling are to be determined; how resources and personnel are to be organized to carry out the processes called for by the defining characteristics; how decisions about curriculum, instruction, and resource allocation are to be made; and how the actual operations involved in instruction and assessment are to be carried out. These are the muscle and sinew of any educational program, including those that are competency based. The fact that a program is competency based will have major implications for the form which such enabling aspects of program operation will take, but every educational program must have such characteristics, in one form or another, to function at all.

On the basis of the defining features that have been proposed, four enabling characteristics should accompany a competency based education program for it to function optimally:

1. The establishment of educational goals and programs on the basis of identified social conditions, both present and anticipated, and what is known about human development and learning.

2. The involvement of students, the community and education personnel in establishing the outcomes desired from instruction, and the procedures to be used in evaluating and certifying the achievement of those outcomes.

3. The use of settings, persons and resources to achieve desired outcomes through--

    - linking program planning, operation and budgeting procedures;

- an information management system that supports data dependent decision making; and
- the appropriate preparation, placement and utilization of personnel.

4. The creation of a decision network that identifies for each major category of decision to be made--

   - the structure or mechanism through which the decision is to be made (e.g., an individual teacher or team of teachers, a departmental or grade level committee, a school-wide committee, a school-community council);
   - the persons to be represented in the decision making process;
   - the persons who are to take part in the decision making process;
   - the procedures to be followed in the decision making process; and
   - the data to be considered during the course of the decision making process.

These characteristics as a whole reflect two major points of emphasis. The first has to do with ensuring that the outcomes to be pursued in an educational system are appropriate and of high quality. In light of the strong outcome orientation of a competency based approach to education, and in light of the requirement that these outcomes be public and agreed to, a competency based education program attempting to operate without the first two characteristics listed above would in all likelihood find itself in trouble very soon, if in fact it were able to be implemented at all. Much the same rationale can be brought to the third and fourth items in the list. If resources and personnel are not wisely used in relation to outcomes to be achieved, and if decisions are not made on the basis of data that are available and in a manner that is in keeping with the public and outcome-oriented stance of CBE, it is likely that a program would find itself in severe difficulty very soon. This does not mean of course that all four enabling characteristics have to be fully operational when a competency based education program is first implemented. It does suggest, however, that unless these characteristics are an integral part of planning in relation to program implementation, and unless they are implemented quickly and as completely as resources permit, it is likely that a competency based program of the kind called for in the present monograph will have a short and unhappy existence.

Unique Characteristics of Competency Based Education

Three aspects of the defining and enabling characteristics outlined above are unique to the idea of competency based education:

1. The insistence that a minimum (non-negotiable) set of outcomes (the competencies) desired from schooling be

defined in terms of the ability of students to function effectively in life roles outside of school;

2. The requirement that attainment of this minimum set of these outcomes be demonstrated as a basis for graduation from school; and

3. The requirement that performance in relation to this minimum set of outcomes be summarized and displayed as part of the certification process.

All of the other characteristics that have been listed as either defining or enabling of competency based education could as well appear in a mastery learning or performance based approach to instruction as in a competency based approach to instruction.

To some readers this conception may seem to miss the point of competency based education, or to so simplify the meaning of CBE that it denies the promise it ostensibly holds. Perhaps so. But the power of these three features to fundamentally alter the nature of schooling, and to noticeably improve the capacity of young people and adults to function within the context of present day society, should not be underestimated. Coming to grips with what such outcomes should be has the potential of changing the relationship between schools and communities, the relationship between students and faculty, and the way we think generally about what the outcomes of schooling should be. Recognizing how such outcomes are to be achieved and assessed is likely to change how we think about where and how instruction is to occur, where and how assessment is to occur, who is to be involved in the instruction and assessment process, and the amount of time required for instruction and assessment.

Facing the reality of having to certify that a student has in fact demonstrated the ability to function effectively in various life roles in out-of-school settings is likely to force schools to take their responsibility for learning much more seriously; it is likely to cause schools to use assessment information as an integral part of the instructional process; it is likely to cause schools and communities to be much more serious about following graduates to see how they are in fact able to function in out-of-school contexts, and to use this information in defining school programs; and it is likely to bring to the outcome identification process a much more thoughtful, analytical and serious orientation than has been the case typically in the past.

If these consequences occur,they must of necessity cause a rethinking on all of the outcomes desired from schooling, and their relationship to those that are required for graduation.

In short, it is possible that what appear on first reading to be the relatively innocuous characteristics of an educational program have within them the power to influence an entire educational system in a major way. Whether they do so depends of course upon the kinds of competencies and outcomes identified, the indicators that are to be accepted as evidence of competency and outcome achievement, the seriousness with which evidence is to be obtained on competency and outcome achievement, and the commitment a school

and community have to the achievement of such competencies and outcomes by students. If meaningful competencies and outcomes are established, strong evidence of competency and outcome achievement obtained, and all students are expected to achieve the competencies desired and are flexibly helped to achieve outcomes in accord with their interests and abilities, schooling as it is known in America today will of necessity change.

These decisions, of course, are generally reached between a district and the community it serves, and thus with CBE as with other approaches to education, the role and function of schooling in American life, and to a large extent its quality, are fundamentally in the hands of communities and the schools they support.

Notes on a Model of Competency Based Education

This monograph carries a title that suggests the existence of at least one model of competency based education, if not alternative models. The issue to be addressed in the following paragraphs is whether the previous listing of the defining, enabling and unique characteristics of CBE represent a model of competency based education.

By almost anyone's definition, a simple listing of the characteristics of a system that is to be modeled does not qualify as a model of that system. Snow (1973) proposes that models be treated as "well developed descriptive analogies used to help visualize, often in a simplified or miniature way, phenomena that cannot be easily or directly observed. Each model is thus a projection of a possible system of relationships (emphasis added) among phenomena, realized in verbal, material, graphic or sympbolic terms" (p. 81). Hathaway (1969), quoting Richard Stone (1967), defines the elements that make up a simple descriptive model as

- Isolating and defining the system and its boundaries according to a (specified) purpose;
- Describing the controllable and uncontrollable variables within the system that are of interest;
- Formulating the relationships among the variables of interest, and estimating the parameters in these relationships; and
- Collecting data about the variables in keeping with proposed analyses (p. 20).

Very clearly, simply listing the characteristics of an educational system, as has been done thus far in the monograph, does not warrant even the label "descriptive model."

At best such a listing can be treated as a proto-model: it constitutes the basic elements from which a model or a series of models can be fashioned, but it does not in its own right carry the strict properties of a model. While even this may be a presumptive use of terms, it is seen as being a useful heuristic for dealing with the remaining content of the monograph,

and it should have long term utility in maintaining an awareness that the demand for bona fide model building still exists.

With this rationale, and with apologies duly expressed to all real and would-be philologists, the term proto-model will be used throughout the remainder of the monograph. Where context demands--for example, in chapter or section titles--the term model will be used as shorthand, but in all cases the meaning to be assigned the term is to be restricted to that implied by the proto-model label. The phrase "model of CBE" will be defined as and reserved for "a well defined and functionally different pattern of emphasis or interpretation that can be given the defining and enabling characteristics of CBE."

Given the assumption that any model of CBE is in fact authentic only if all defining characteristics are represented in identifiable form, it makes little difference whether one argues for "alternative" models of CBE or "variations" on a single model. The reality of implementation is that variation in emphasis or interpretation will in fact occur, and it is arbitrary whether these variations are labeled alternative models of CBE or simply model-based variations.

Recognizing the arbitrariness involved, the language of both alternative models of CBE and model-based programs of CBE is used in this monograph. The rationale for this distinction is twofold. First, it may be useful to think in terms of trying to identify rather well defined, easily recognizable, and functionally different patterns of emphasis or interpretation that can be given the defining and enabling characteristics of CBE (alternative models of CBE), and treat these as viable and distinct options for schools or districts or states to pursue. Second, the language of model-based programs will enable adopting schools or districts or states to identify quickly for one another the broad characteristics of the competency based program that is being implemented, and at the same time accommodate the endless variations on a particular model that will occur across implementing districts.

Put in other terms, the language of alternative models facilitates the search for alternatives in articulating and interpreting the defining and enabling features of competency based education, while the language of model-based programs provides adopting schools or districts or states with a descriptor that conveys a great deal of meaning to others but at the same time permits the adopting schools to implement within that general descriptor whatever is needed to accomodate the particular demands of their own contexts. This language pattern is used throughout the remainder of the monograph, and attention is directed to describing several of the more obvious alternative models of CBE that can be identified by assigning different emphases to the defining and enabling characteristics of CBE.

Notes on "Partial Models" and "Approximate Programs" of Competency Based Education

For purposes of the present monograph, a partial model or an approximate program of competency based education is defined as one that does not incorporate all five of the defining characteristics of CBE in clearly

recognizable form. Since the development of alternative models of CBE is largely a paper exercise,it is unlikely that partial models will occur, unless of course the model builder chooses to ignore one or more of the defining characteristics proposed or chooses to define competency based education on a different basis. The implementation of school programs, however, is a different matter: here it is likely that most implementation efforts, at least in the beginning, will be approximate programs. It is unlikely that school districts will be able to implement a full fledged competency based education program all at one time. The magnitude of change is such that most districts will require at best a three-to five-year period to shift their programs to a competency based mode of operation, and then it is likely that they will be operating in a manner that is only a rough approximation to what is desired or what may exist at a later point in time.

It is important that this be understood, and not only as a matter of resource availability. Equally important is the matter of time, for the principles and practices of competency based education are so at odds with much of what goes on in contemporary schools that considerable time must be allowed for students and faculty to act habitually on the basis of CBE principles and practices. A clear understanding of the time required for shifting from a traditional to a competency based mode of operation should elicit a great deal of tolerance for schools that only approximate a fully operational CBE program.

CHAPTER 3

ASSUMPTIONS UNDERLYING COMPETENCY BASED EDUCATION

The literature on competency based education and teacher education has not dealt extensively or systematically with the assumptions underlying the concept (Eisele and Halverson, 1975). Assumptions have been spelled out in relation to particular practices within the competency based movement; for example, the value of stating publically and clearly the outcomes desired from instruction or the value of using a systems approach to program design and adaptation--assumptions underlying the concept of CBE as a whole--have not been articulated. This chapter explicates assumptions underlying the proto-model of competency based education that has been proposed, and demonstrates the interdependence of these assumptions when the proto-model is applied to ongoing school programs.

The treatment of assumptions generally parallels the characteristics of CBE listed on pp. 18 to 22. Assumptions paralleling the defining characteristics of CBE programs are treated under eight headings:

- CBE as a means of clarifying and extending the outcomes desired from education;
- CBE as a means of providing clear evidence of the achievement of outcomes desired from education;
- CBE as a means of facilitating the achievement of outcomes desired from education;
- CBE as a means of personalizing the instruction-learning process;
- CBE as a means of adding flexibility to and extending the range of program options for the instruction-learning process;
- CBE as a means of improving and refining the instruction-learning process, and making schooling generally more cost effective;
- CBE as a means of making schooling more consistent with the demands of everyday living; and
- CBE as a means of fostering independence in learning, and a commitment to the value of learning throughout one's life.

Fewer assumptions relate to the enabling characteristics of CBE. These are addressed under five headings:

- CBE as a means of increasing the rationality of goal setting in education;

- CBE as a means of involving parents and members of a community more directly in the process of education;

- CBE as a data dependent, decision oriented approach to the management of education;

- CBE as a data dependent, decision oriented approach to the governance of education; and

- CBE programs as a means of increasing the benefits received from education per unit of cost incurred.

Assumptions pertaining to the unique features of CBE are dealt with throughout the chapter, as well as on pp. 22 and 23 of the previous chapter.

To help keep the implications of competency based education in perspective, the chapter ends with a listing of some things CBE does not assume.

Assumptions Related to the Defining Features of Competency Based Education

CBE As A Means of Clarifying and Extending The Outcomes Desired From Education

Perhaps more than anything else competency based education is seen as a means of clarifying the outcomes desired from education, extending those outcomes beyond those typically pursued by schools, and insisting upon clear evidence of the achievement of a particular set of outcomes prior to graduation. In many respects the process of goal setting in a competency based education program is much like that in traditional programs in that--

- The broad outcomes desired by a community of its schools are to be specified;

- The programs of instruction offered by schools within a community, and the outcomes expected from them are to be consistent with these broad outcomes;

- The courses offered by schools within a community, and the outcomes expected from them, are to be consistent with the broader outcomes; and

- All of the above are to be guided by an analysis of conditions affecting graduates of education programs in the future, as well as an up-to-date knowledge of what is known about human development and learning.

Such goal setting procedures are only a beginning, however. Competency based education requires additional steps. These steps make the identification of outcomes within a CBE mode of operation more demanding, and potentially much more powerful. They are--

- An insistence that a minimum set of outcomes desired from schooling be stated in terms of the demonstrated ability to function effectively in a number of life roles in out-of-school settings (the set of outcomes desired from schooling that are called competencies); and

- An insistence that students demonstrate this minimum set of competencies as a basis for graduation, and that the demonstration of competencies by each student be so certified.

A third practice often accompanies the goal setting process in CBE. This involves identifying the indicators of outcome achievement at the same time that outcomes are being defined. Such a procedure helps people clarify the rather general outcome statements they are working with, and it provides clear direction as to how each outcome is to be measured.

When these features are added to the traditional goal setting procedures of education, some of the power of CBE becomes apparent. They clarify the goal setting process by pointing to what will be accepted as evidence of goal achievement; they press for the outcomes of education to be thought of in terms of performance in out-of-school contexts as well as within school contexts; they demand that schools go beyond the point of rhetoric about achieving such outcomes, and obtain evidence on the ability of students to apply their knowledge and skills in life role, out-of-school situations; and they require that schools link graduation and certification to the ability of students to demonstrate the achievement of such outcomes. By taking this last step a district enters fully into the arena of accountability, for it thereby accepts the obligation to offer instructional programs that will enable students to attain the knowledge and skill required to function effectively in out-of-school settings, and to provide the assistance needed to practice and integrate this knowledge and skill.

CBE As A Means Of Providing Clear Evidence Of The Achievement Of Outcomes Desired From Education

Competency based education requires as much clarity of statement and evidence regarding the knowledge, skills, attitudes, beliefs and appreciations that society feels essential for its citizenry as for the competencies required for graduation. While CBE does not dictate outcomes, it does require that the outcomes be clearly stated and that evidence of outcome achievement be formally obtained.

In some respects the demand of competency based education for evident outcome achievement is its most powerful feature. Such information permits students, for example, to be clear about what they are trying to achieve; it enables them to track the progress they are making; and it

enables them to know when they have achieved their goals. It also permits teachers, for example, to be clear about the outcomes both they and the students are trying to achieve; it enables them to track the progress that is being made and to adapt their instruction accordingly; and it enables them to know when desired outcomes are achieved so that instruction need not be carried further. These advantages provide a means for the instruction-learning process to become more focused and efficient than in traditional schools.

Evidence of outcome achievement also has a number of advantages for school districts as a whole. It enables a district, for example, to be clear about the effectiveness of its various instructional programs, and to share this information with its patrons. It also provides a means of allocating resources for the improvement of weak programs, and for marshalling community support for program improvement on the basis of fact rather than argument and exhortation. It also provides the kind of information about outcome achievement that a district needs to put in the hands of parents of children enrolled in a district.

While the CBE requirement for evidence of outcome achievement is in some ways its most useful feature, it may also be its most troublesome. Standardized measures of achievement do not go far toward meeting the needs of outcome assessment within a competency based program. They do not assess performance in out-of-school settings; they do not attend to many of the skill and attitudinal outcomes that districts desire; and they are not a good means for providing continuous feedback to students and teachers about performance in relation to specific outcomes. In addition, many parents and educators feel they provde inappropriate evidence of outcome achievement, for they are commonly based on a norm referenced approach to measurement rather than a criterion-referenced approach. As a consequence of such limitations, districts or school personnel are forced to develop the tools to assess the vast majority of outcomes desired from schooling, and to do so according to the principles of criterion-referenced testing.

For persons who are knowledgeable concerning the principles of measurement, and for teachers who know how much time and energy go into the development, administration, and use of teacher made tests, the magnitude of such a task is apparent. Not only is the technology of criterion-referenced testing still primitive, and the number of persons familiar with the technology limited, the resources required to develop and use the technology on a scale implied by CBE are sizeable. Given existing constraints on most school budgets, new resources are not likely to be found. Districts that assume a CBE mode of operation must find ways to channel existing resources to the assessment function. They must also find ways to make do with relatively unsophisticated measures of outcome achievement, for the number of such measures to be developed rules against a high degree of sophistication.

If funds within a district are channeled to the assessment function, a related decision will have to be made: Should these resources be placed in the hands of teachers, who will then carry out the assessment function in conjunction with instruction; or should they be placed in the hands of district assessment personnel, who will then

work cooperatively with teachers. This will be a matter of district preference, though obviously the decision made in this regard has major implications for staff development and the ongoing operation of schools.

So there is a dilemma within CBE. On the one hand it offers a set of procedures for the design and operation of schools that stands to improve the quality and utility of schooling immensely. On the other hand it requires knowledge, expertise, and resources that at best are barely within the grasp of today's schools.

Nowhere is this more evident than in the assessment of learning outcomes. While nationwide testing efforts such as Project Talent and the National Assessment of Educational Outcomes are developing procedures for assessing competence in relation to performance in life roles, much still needs to be done before school districts of average size and with an average resource base will be able to implement an assessment system appropriate to competency based education. Clearly, the long term gains anticipated from the competency based education movement rest in part on the technology of outcome assessment.

CBE As A Means Of Facilitating The Achievement Of Outcomes Desired From Education

It has been argued in the preceding pages that the careful and continuous assessing of the outcomes desired from schooling contributes toward the achievement of those outcomes. CBE places an added demand on schools, however, by way of outcome achievement. This is the requirement that instructional programs be linked logically and directly to the outcomes desired from schooling, and that instructional programs be judged successful only when students are able to attain the outcomes desired through the operation of those programs.

Operationally this means that instructional programs, courses within programs, and units of instruction within courses must be established on the basis of outcomes to be achieved rather than disciplines to be taught or course titles to be maintained.

Such an approach to curriculum and instruction has major implications for the structure and operation of schools. One of these is the organization of schools around courses. In a competency based approach to schooling, students are likely to engage in modules of instruction designed to promote particular learning outcomes, instead of enrolling in courses that have the mastery of a particular body of subject matter as their objective. While a number of modules could be linked together in the form of a course, a course structure need not be maintained unless it is judged to be an effective and efficient unit of organization for curriculum development and instruction.

Another likely difference to be observed in the instructional program of schools that have implemented a competency based mode of operation is in the nature and range of learning experiences offered within and outside of the school setting. This is particularly the case with respect to the acquisition of competencies needed for graduation, and the settings in which instruction for competency acquisition takes place.

Here instruction is much more likely to take place in out-of-school settings, or in special laboratories within school settings, and persons other than school faculty are likely to be involved in both the instruction and assessment activities that pertain to the acquisition and demonstration of competence.

As in the case of assessment, the practical and financial implications of linking curriculum and instruction to desired learning outcomes are of major proportions. While the technologies of mastery learning and modularized instruction are reasonably well established, the task of translating the instructional program of a school into such a framework and concurrently moving faculty from a discipline orientation to an outcome orientation to instruction requires prodigious energy and unusually skillful leadership.

CBE As A Means Of Personalizing Instruction-Learning Process

A competency based approach to education permits the personalization of the instruction-learning process in a variety of ways, and it does so for both the students and the teachers involved. One way in which this is done is through students being able to negotiate the outcomes to be achieved through schooling other than those required for graduation. If school districts adopt this point of view, and establish only a minimum set of outcomes as those required for graduation, students should be able to negotiate a sufficient number of range of outcomes to tailor their school program to their own interests and abilities.

Another way in which CBE encourages the personalization of the instruction-learning process is through students' being able to negotiate the indicators to be used as evidence of outcome achievement. This is based on the recognition that evidence of outcome achievement can take a wide variety of forms. If school districts adopt this point of view, students and teachers are free to negotiate indicators of outcome achievement for all outcomes, including possibly those required for graduation.

For example, one student might choose to demonstrate the ability to read at a level required to function in contemporary society (a competence to be demonstrated for graduation) by reading and interpreting correctly the meaning of a series of newspaper articles, legal contracts, merchandise labels, recipes, or automotive repair manuals. Another student might choose to demonstrate the same competence through reading and demonstrating a grasp of the meaning of passages from Shakespeare, articles in popular scientific and technological journals, existing laws and administrative rulings governing advertising within a state, and a manual for assembling a motor scooter. Either set of indicators might be acceptable as evidence of being able to read at a level required to function effectively in contemporary society, and yet they are sufficiently different in kind to accommodate markedly different interests, and perhaps abilities, in the two students.

Competency based education also encourages the personalization of the instruction-learning process through students' being able to negotiate the specific measures to be used in obtaining evidence of outcome achievement, and in turn the level of performance to be demonstrated on those

measures as evidence of satisfactory achievement. These two avenues to personalization follow directly from the indicators of outcome achievement that have been identified. The specific measures to be used to obtain evidence of the ability to read and understand legal contracts, for example, would be different from the measures used to obtain evidence of the ability to read and understand the meaning of articles on current technological and scientific developments, though the general approach to measurement would be similar. As a consequence of these differences, the level of performance to be demonstrated on these two measures as evidence of an acceptable level of achievement will differ.

Perhaps the most effective means to the personalization of learning is the personalization of the instructional process. It is recommended that this be done in a variety of ways, including the provision of--

- Alternative learning experiences for the realization of each outcome desired;
- An opportunity for students to negotiate preferred learning experiences, given differences in background, learning styles, and the indicators to be relied upon as evidence of outcome achievement;
- An opportunity to pursue a particular learning activity (and achieve a particular learning outcome) at differing rates of speed and over differing units of time;
- An opportunity to choose to the extent possible the instructional and assessment staff with whom to work in achieving a particular outcome; and
- An opportunity to engage in as many different learning activites as needed, or to work through a particular learning activity as many times as needed, to achieve the learning outcome desired.

The rationale underlying the assumption of the need to personalize the instruction-learning process within a competency based approach to education is many-sided. From the point of view of the mastery learning model that is central to CBE, the availability of alternative learning experiences and the opportunity to have as much time as needed to achieve an outcome are essential. From the point of view of students' willingness to engage in learning activities, an opportunity to negotiate a large proportion of the outcomes to be pursued while in school, and an opportunity to negotiate the manner in which they are to be achieved, becomes an important consideration. From the point of view of matching instruction to individual differences in background, abilities, and learning styles, the provision of a wide range of learning options, and an opportunity for students and instructors to negotiate the particular set of options that seem to be most appropriate for a particular student working toward a particular outcome, becomes eminently sensible.

Above all, there is the assumption that the opportunity for students to be actively involved in identifying the outcomes to be worked toward in school, actively involved in identifying the learning activities to be pursued in achieving those outcomes, actively involved in identifying the indicators and measures to be used as evidence of outcome achievement, and repeatedly held accountable for the achievement of outcomes as a basis for progressing through school, is the best possible kind of learning experience for becoming self-directed adults who are committed to life-long learning.

CBE As A Means Of Adding Flexibility To And Extending The Range Of Program Options For the Instruction-Learning Process

From what has been said in the previous pages, schools adopting a competency based mode of operation have little option but to provide a wide range of alternative learning experiences for the achievement of each learning outcome desired. The interdependence of the concepts of mastery learning and individual differences in background, ability and learning styles make alternative learning experiences for each outcome a logical necessity. To make such learning options function within the context of a CBE program, however, some means must be found by which such options can be fully exercised. Minimally, this includes a means by which students and instructors can sift through the options available and arrive at the learning activity that appears to be most appropriate for a particular student working toward a particular learning outcome; a means by which a learning experience can be tried, and cycled through a second time if the desired outcome is not achieved; a flexible treatment of time in relation to outcome mastery and demonstration; and the offering of alternative learning experiences on a schedule that permits reasonably free and repeated access to them by students.

To the extent that a school's curriculum possesses these characteristics at the time a CBE mode of operation is adopted, their impact on schools will be minimal. For schools whose curriculum does not reflect these characteristics, or for schools whose curriculum does reflect these characteristics but who decide to extend or redefine the outcomes desired from schooling, thier impact will be considerable.

CBE As A Means Of Improving And Refining The Instruction-Learning Process, And Making Schooling Generally More Cost Effective

The concept of competency based education has emerged as much from the principles associated with a systems approach to education as with any educational movement, and therefore holds as central the principles of feedback and continuous adaptation and correction. Operationally this means that a competency based mode of schooling always approaches a particular instructional program as an approximation to the best possible program, and as such it is to be improved. It also means, operationally, that to improve an instructional program, evidence must be obtained of its effectiveness with a large number of students, and what in the program seems to work and not work. Finally, it means that some provision must be made within a school or district to review this evidence of program effectiveness, determine what aspects of the program need to be improved, carry out the improvement process, and resubmit the improved programs to the entire testing, evaluation and improvement cycle.

Theoretically, this approach to curriculum improvement is continuous. Practically, it cannot operate in all curriculum areas simultaneously, and a point is reached eventually at which further improvement of a program is unwarranted so long as the outcomes to be achieved are maintained.

To act in a manner that is in keeping with this orientation to curriculum improvement, districts need to identify a set of curricular areas in which to carry out such evaluative-adaptive studies, implement the studies and make the changes needed, and then move on to new areas of study. The number of curricular areas to be addressed in a particular year, and the number of times a particular area will be reviewed before the instructional program within it is judged to be acceptable, will depend on an interplay of the resources a district has to give to such activities and the relative effectiveness of instruction within a particular program area. Programs that consistently fail to yield the learning outcomes desired obviously must be improved (or the outcomes desired modified), yet there is a limit to the resources that a district can give to such improvement activities within a particular period of time.

The concepts of general systems theory apply to all aspects of schooling, not just to instruction. Program management and governance procedures, accounting practices, staff assignment and development procedures, support services such as counseling, bussing, and health services, and relationships with parents and other members of the community are as subject to evaluation and improvement activities as instruction. In like fashion, districts are as obligated to design and carry out such activities as carefully and as consistently as they do with respect to instruction. A systems theory view holds that all aspects of schooling are interdependent; that the system as a whole is only as good as its weakest part; and that all aspects must therefore be subjected continually to evaluation and improvement. Much of the power of a CBE approach to education rests on an honest commitment to these principles, and to the development of procedures and allocation of resources to carry them through. Fortunately, development within the past decade of the methodology of program evaluation has provided many of the tools to implement these ideas.

CBE As A Means Of Making Schooling More Consistent With The Demands Of Everyday Living

Many forces operate today to make the outcomes of schooling more clearly related to the demands of everyday living. This, of course, is not new to the arena of public education, but the pressure for career education, the growing concern about the inability of high school graduates to read and write at a level that permits them to function effectively in college, and the recent evidence that as many as 25 percent of the adult population in the United States do not have the basic skills to function effectively in day-to-day living (the matter of functional literacy), is bringing unparalleled pressure on schools to attend to basic skill development. This pressure, coupled with a growing scarcity of resources for public education and an increased concern with the returns on dollars invested in education, is forcing schools to reexamine the purposes of public education and to reach some conclusions regarding how these purposes can best be met.

The unique features of CBE, however, are tied directly to these pressures and trends, for they have been designed consciously to force schools to both think seriously and act responsibly toward helping young people function effectively in the broader social systems.

CBE As A Means Of Fostering Independence In Learning, And A Commitment To The Value Of Learning Throughout One's Life

Some of the major benefits that may emerge from a competency based approach to education--and some would argue the most important benefits of all--are indirect. These are the benefits of learning how to learn; learning how to define what is important to be learned; and experiencing the lasting satisfaction that comes with having learned something that is deemed important.

It is assumed that a continuing opportunity to help define and negotiate what is to be learned, a continuing opportunity to define and negotiate the learning activities to be pursued, and a continuing opportunity to identify and assess performance in relation to what is to be learned will provide well established habits of learning. Participation in such an approach to schooling, and the achievement that goes with it, should enhance satisfaction with schooling and maximize one's commitment to learning throughout life.

Assumptions Related To The Enabling Features Of Competency Based Education

CBE As A Means Of Increasing The Rationality Of Goal Setting In Education

Central to the implementation of any CBE program are the outcomes to be achieved through schooling. A competency based program starts with the outcomes to be achieved, and ends with evidence of how well they have been achieved. It takes as a first principle of operation the assumption that the outcomes specified are appropriate and meaningful outcomes, and that students achieving these outcomes will be well equipped to function in contemporary society. To the extent that this principle is violated, or in any way diminished in its effectiveness, the power of competency based education to make a difference in the education of children and youth is also diminished.

One way to increase the likelihood that the outcomes desired of schooling are appropriate and meaningful is to insist they be established only after a careful analysis of the nature of the society that graduates of educational programs will be entering, both present and anticipated, and an equally careful analysis of human development and learning. By considering this information in conjunction with the knowledge accumulated for the disciplines, the appropriateness and meaningfulness of goals established for a school system should be enhanced considerably.

CBE As A Means Of Involving Parents And Members Of A Community More Directly In The Process Of Education

CBE makes two assumptions about the involvement of parents and members of a community in the educative process. The first is that it is desirable to have the patrons of a school be involved in policy decisions that affect the design and operation of school programs. This rests on two further arguments: (a) that involving people in planning and policy decisions leads to a feeling of ownership toward the programs that result, and this in turn to a heightened commitment to them, and (b) that commitment to the purposes and programs of a school by its patrons will enhance the likelihood of those programs being successful.

The second assumption has to do with the likelihood of parents and members of a community becoming more involved in the educational process within competency based schools than they have in the past. This comes from the greater opportunity within CBE programs to become involved in decisions affecting school programs, and from the likelihood that the adults of the community will of necessity become involved in instruction and assessment in relation to the attainment of competencies needed for graduation. This follows from the requirement in competency based programs that a minimum set of competencies to be demonstrated for purposes of graduation will reflect performance in real life settings, and that much of the instruction and assessment to be done in relation to the acquisition and demonstration of such competencies will be carried out by persons in a community other than certificated school personnel.

CBE as a Data Dependent, Decision Oriented Approach to the Management of Education. Much has already been said about the advantages of adopting a general systems orientation to the design and operation of education programs. The application of such principles, once a policy decision has been made to do so, is fundamentally a management or administrative responsibility. General systems principles apply to more than the evaluation and

adaptation of instructional programs. Within the context of competency based programs they apply equally to the processes used in identifying and evaluating the outcomes desired from instruction, the processes and decision rules by which resources are allocated to programs, and the processes and decision rules governing all other aspects of the educational enterprise; for example, staff development and placement, student personnel services, student health services, and practices and procedures pertaining to bussing.

Systems design procedures are a means of clarifying what it is that is to be done or accomplished, how effectively it has been done, and if what has been accomplished is not satisfactory, what might be done to improve it. This process is applicable to all aspects of the educational enterprise, and the press of competency based education is to have them applied systematically, as resources permit, to all aspects of that enterprise.

One consequence of such an approach to managing the educational process is the emphasis it places on decisions being both public and data dependent. This causes the whole decision making process to become more conscious and carefully planned, and more openly shared. It requires, for example, a clear statement as to who is to be a part of a particular decision, what structures and procedures are to be used in reaching a particular decision, and what data need to be reviewed in the course of reaching that decision. This in turn forces clarity regarding when and in what form data need to be presented to be useful in decision making. The implications of public and data dependent decision making for the operation of CBE programs have been dealt with by Schalock (1974).

CBE As A Data Dependent, Decision Oriented Approach To The Governing of Education

In one respect this assumption is simply an extension of the previous assumption, for it is one critical aspect of making a systems design approach to program administration work. A public and data dependent approach to decision making within a competency based program extends to policy as well as to day-to-day operational decisions. In fact, such an approach may be more important at the policy level than at the operations level. Unless such clarity is established for policy decisions affecting a competency based program, particularly in its beginning stages, the program may be seen as inconsistent with its commitments.

CBE Programs As A Means Of Increasing The Benefits Received From Education Per Unit Of Cost Incurred

One important aspect of the concept of school accountability is the idea that schools should make a reasonable effort to show benefits received for costs incurred. While developers of competency based education models and programs have made no assumptions about CBE costing less than traditional programs, they have assumed that in the long run CBE programs will provide greater benefits per unit of cost than traditional programs. Methodologies for conducting cost-benefit analyses are being developed within the context of CBE programs. They should facilitate comparison of the cost-benefit relationships between CBE programs and traditional programs.

Some Things Competency Based Education Does Not Assume

To maintain a balanced perspective on CBE at least six limitations must be confronted:

1. The cost of schooling will not decrease.
2. The process of schooling will not be simplified.
3. The work demanded of students will not be less.
4. Differences between students will not be diminished.
5. Students who graduate from a competency based program will not be equally competent.
6. Students who graduate from a CBE program will not be assured of success in later life.

Each of these topics is treated briefly in the pages that follow. The analysis of costs and benefits associated with the competency based teacher education program at Oregon College of Education provides additional detail (Schalock, Kersh and Garrison, 1976) within the arena of teacher education.

CBE is not based on the assumption that the costs of schooling will decrease. In all likelihood a fully operational competency based program will be more costly than traditional programs. The trade-off is that both the short and long term benefits gained per unit of cost are likely to be greater for competency based programs than for traditional programs. The results of the costs-benefits analysis at Oregon College of Education, though limited to an analysis of short term benefits, supports this conclusion.

While the ratio of benefits to costs may favor a competency based approach to education, particularly over the long term, the immediate question is: How much will it cost beyond what education now costs? Solid evidence regarding costs comes from the arena of competency based teacher education. OCE found that it costs the college only $62 per year per student more to operate the professional year of its competency based elementary teacher education program than it did its earlier program, and this program reflects all of the defining and enabling characteristics of CBE proposed in the present monograph. A hidden cost associated with the program is an estimated $510 per student per year cost that is borne by cooperating schools for the added supervision and assessment called for by the new program. (School supervisors spend an average of four and a half hours per week supervising students in the new program, compared to an average of two and a half hours per week in the previous program.) But this added cost to schools appears to be offset by the added benefits that come through teacher participation in the program, and through the contributions that better prepared students make to school programs.

To operate such a program, OCE has had to shift resources formerly allocated to classroom instruction and assessment (for purposes of knowledge and skill mastery) to supervision and assessment in

field settings (for purposes of competency acquisition and demonstration). This same kind of shift will probably need to occur in competency based education programs, but this has simply reflected a reorganization of priorities in terms of kinds of outcomes to be achieved, and thus is regarded as a benefit rather than a liability.

Another encouraging finding about cost from the OCE study is the relatively small amount of extra money required for program development. Development costs amounted to only 10 percent of their original estimate, a figure that is essentially unheard of in days of spiraling prices and cost overruns. These figures reflect in part a "make do" philosophy on the part of the OCE faculty and administration, but in large part they reflect the philosophic commitment of the faculty and administration to design and implement a competency based program that can be operated within the resources currently available to the institution.

CBE is not based on the assumption that the process of schooling will be simplified. A competency based approach to education in no way simplifies the educational process. It brings order, direction and clarity of purpose to education, but it does not bring simplicity. In fact, all of the following process of CBE add complexity. The process of clarifying outcomes and indicators acceptable as evidence of outcome achievement; obtaining trustworthy evidence of outcome achievement; designing instructional programs that provide alternative learning experiences for the realization of outcomes; using evidence of outcome achievement as a basis for program placement and certification decisions; personalizing the instruction-learning-evaluation process; evaluating program effectiveness on the basis of learning outcomes; adapting programs until they promote the learning outcomes desired; allocating resources on the basis of outcomes desired; and operating programs that prepare staff to function within a competency based approach to schooling.

But the added complexity is not impossible to deal with. In almost all respects competency based education simply represents an elaboration or refinement of what teachers and administrators already do, or would like to do if "the system" were only a bit different. Competency based education represents good pedagogy, and teachers and administrators grasp quickly the principles involved. What takes time and energy, and in some cases knowledge and technology that does not yet exist, is the implementation of the principles of CBE within the context of ongoing school programs. The mechanics of assessment, data management, and the personalization of instruction represent major developmental efforts for most schools, and a major reorientation to the instruction-learning process for most teachers. The interaction of the various characteristics that make up a competency based program add even more to their complexity. The experience with competency based teacher education, however, indicates that with time, faculty and administrators learn to function within the context of competency based programs as easily and naturally as they function within present day programs.

CBE is not based on the assumption that work demanded of students will be less. CBE makes no assumption about the amount of work required of students in a competency based program. What it does assume is a different kind of work. Students will be clearer about the outcomes to be achieved; many of these outcomes will be of their own choosing; instruction

will be linked more directly to specified learning outcomes; a wider variety of learning activities will be pursued in achieving particular outcomes; many outcomes will be linked more directly to out-of-school circumstances; a portion of instruction will take place in contexts outside of school; and students will know clearly whether and when desired outcomes have been achieved. In this sense learning will become more goal directed and varied than it often is in school today, and students will assume more initiative in defining both what the outcomes of schooling shall be and what learning experiences will be pursued in achieving them. Whether more or less work will be involved will depend on the nature and number of the outcomes to be achieved, the level of performance expected in relation to these outcomes, and the number and kind of outcomes pursued that are not required for graduation.

CBE is not based on the assumption that differences between students will be diminished. Competency based education carries no threat of reducing differences between people. In fact, as CBE is now conceived, it should heighten differences between individuals. A greater clarification of the outcomes desired of schooling, an opportunity for students to select from among these outcomes those that are most appropriate to their own interests and abilities, and some assurance that outcomes pursued will in fact be achieved, are all features of competency based education that are designed to encourage and extend differences between individuals. The added commitment of CBE to adapting learning activities to individual differences in background, ability, and learning style, and to allow differing amounts of time for individuals to achieve particular outcomes, is also designed to both heighten the awareness of individual differences and to respond to them.

CBE is not based on the assumption that students who graduate from such a program will be equally competent. On the basis of what has just been said about individual differences this non-assumption of CBE is probably obvious. At the same time, however, many people on first encountering the concept of competency based education assume that one of its basic premises is to assure that all students going through a competency based program will be "equally competent" to function in out-of-school contexts. This is simply not the case. Competency based education assures the achievement of a minimum level of competence on the part of those graduating, but not equal competence. In this respect competency based education ensures only the achievement of the foundation of education that a community deems desirable. In every other respect CBE is designed to sharpen individual differences, and enhance each child's achievement in relation to his or her potential.

Such a view of the purposes of competency based education is in part philosophic, and in part a simple recognition of the reality of differences. An approach to education that is not committed to facilitating the optimal growth and development of each child while at the same time assuring a minimum floor of competence for all children, and facilitating both in full recognition of the individual differences involved, would be untenable. On the other hand, an approach to education that assumes that schools can overcome individual differences in learning ability and background to the point that all children can be equally competent would be naive.

A host of factors contribute to competence besides schooling; for example, ability, experiences in the home, energy, and the psychological

health and makeup that permits learning to be pursued. And of these various factors that lead to competence, schooling may be the least influential.

No matter what the approach to schooling, the reality of individual differences dictates that most students who graduate will reflect minimal competence in some areas and unusual competence in others. Some students, of course, may be unusually competent in all areas, and others barely competent in any, but differences of this magnitude are rarely attributable to schooling. At best, CBE can ensure a minimum level of competence for dealing with selected life roles, and more should not be expected of it.

CBE is not based on the assumption that students who graduate from such a program will be assured of success in later life. The recent work of Jencks (1972) and others has demonstrated the tenuous linkage between schooling and success in life even more sharply than was suspected in the past. Success in life is a function of a multitude of circumstances, and depends only in part on specific competencies. Moreover, success is determined by performance in a number of life roles where various competencies come to bear.

While schooling cannot ensure success in life, it can enhance each pupil's chances for success by reliably and efficiently promoting essential competencies. Schooling can make a difference (Smith and Orlosky, 1975), and competency based education represents an approach to schooling that offers the promise of clarifying and enlarging that difference.

PART II

A FRAMEWORK FOR IDENTIFYING PROGRAM OPTIONS AND ALTERNATIVES

OVERVIEW

Part II outlines a framework for organizing the information needed to make decisions about the content of a CBE program and the procedures to be followed in implementing such a program. The framework calls for four kinds of information to be provided in support of such decisions: (a) examples of content options available to schools; (b) examples of who might be involved in making decisions about content and procedures; (c) examples of who should be governed by such decisions; and (d) examples of procedures that could be followed in reaching such decisions. The framework identifies and helps organize these four kinds of information in relation to each of the identifying and enabling characteristics of CBE programs listed in Chapter 2 of Part 1 as elements of the proto-model of CBE.

After describing the rationale for the decision making framework, and illustrating how it is to be used, an illustrative set of options for decisions is provided.

The usefulness of the framework in identifying alternative models of CBE is also discussed.

An Introduction To The Framework

As indicated in Chapter 2, the defining and enabling characteristics of a competency based approach to instruction that have been proposed make no reference to content. Other than indicating that a proportion of the outcomes to be pursued by students in schools are to reflect the ability to function effectively in out-of-school contexts, and that some of these in turn are to be demonstrated in order to graduate, the characteristics say nothing about what these outcomes are to be, what form indicators of outcome achievement are to take, or what the standards of performance are to be. Nor do they speak to the practices and procedures to be followed in translating content into operational programs. The defining characteristics of CBE say nothing, for example, about how instruction is to be carried out, how and when evaluation is to take place, or how these activities are to be personalized.

In short, the proto-model of competency based education that has been proposed is for all intents and purposes a process model, leaving decisions about the content of education and the procedures by which the various processes are to be implemented strictly in the hands of implementing schools.

Decisions about both content and procedure, of course, have major implications for what happens in schools. They also have major implications for the cost of schooling, and for the difference schools are likely to make. Because of the far-reaching implications of such decisions, a framework has been developed to assist communities who wish to implement a competency based approach to schooling in making content and procedural decisions that are consistent with such an approach.

The framework identifies and helps organize the information needed to make decisions about content and procedure in relation to each of the processes identified in the proto-model of CBE. The framework calls for four kinds of information to be provided before making such decisions: (a) examples of content and procedural options available to schools; (b) examples of who might be involved in making decisions about content and procedures; (c) examples of who should be governed by such decisions; and (d) examples of procedures that could be followed in reaching such decisions. The framework takes the form illustrated in Figure 4.

	Options To Be Considered			
Model Characteristic	OPTIONS AS TO CONTENT	OPTIONS AS TO WHO IS TO PARTICIPATE IN CONTENT DECISIONS	OPTIONS AS TO WHO IS TO BE GOVERNED BY CONTENT DECISIONS	OPTIONS AS TO PROCEDURES TO BE FOLLOWED IN REACHING CONTENT DECISIONS
E.g., OUTCOMES TO BE ACHIEVED				

Figure 4. A framework for identifying alternative CBE Programs.

For purposes of the present monograph, examples will be provided only for the content dimension of the decision making process. This will serve to illustrate how the framework is to be applied, and at the same time provide some guidance for program planners who are in the process of making such decisions. This may also be as far as the framework can be applied in the abstract, for decisions about procedure tend to interact powerfully with decisions about content. This interaction may mean that applying the framework to procedural decisions will have to wait until content decisions have been made. If this is found to be true, it will also mean that each implementing district will have to develop its own set of procedural options after decisions about content have been reached. This assumption is still to be tested, however, and if it is found that the framework can be applied to operational procedures in the abstract, subsequent drafts of the monograph will reflect such an application.

By helping districts make appropriate decisions about the content and operation of their competency based programs, the framework for identifying program options is designed to assist in the identification of alternative models of CBE. By analyzing the range of options available to schools when implementing the various defining and enabling characteristics of the proto-model, it should be possible to identify patterns of options that identify functionally quite different approaches to competency based programs. Three such patterns have been identified, along with a set of primary and secondary variations within patterns (see Part III). These few patterns by no means exhaust the range of meaningful patterns that can be identified within the implementation options available. Nor is there any assurance that these are in fact the most meaningful patterns that can be identified. They do illustrate, however, the form which such patterns can take, and as such represent a first approximation to some "alternative models" of CBE from which implementing districts might take guidance.

Decisions About The Outcomes Of Schooling To Be Achieved

One of the early tasks to be attended to in implementing a competency based approach to education is to identify the outcomes desired from schooling, and to make them public to all concerned. Within the context of the model of CBE that has been proposed this needs to be done in light of (a) an analysis of the social context in which graduates of a school will enter, both present and anticipated; and (b) what is known about human development and learning. As with all other aspects of a CBE program, the matter of outcome identification, as well as the analysis of what is known about development and learning, is a continual process. The outcomes selected as a point of departure in such a program need to be reviewed periodically to be sure they continue to be appropriate, and if not changed. The decision options provided in Table I should be helpful in initiating this review.

Table 1. Options To Be Considered In Reaching Decisions About Outcomes To Be Achieved

Model Characteristic	Options To Be Considered			
	OPTIONS AS TO OUTCOMES	OPTIONS AS TO WHO IS TO PARTICIPATE IN OUTCOME DECISIONS	OPTIONS AS TO WHO IS TO BE GOVERNED BY OUTCOME DECISIONS	OPTIONS AS TO PROCEDURES TO BE FOLLOWED IN REACHING OUTCOME DECISIONS
District Level Outcomes	How broad are they to be? What domains of human activity are they to reflect? Are outcomes at the district level to be measured? If so is a particular level of achievement in relation to these outcomes to be required for graduation? If district level outcomes are not to be assessed, are they to be inferred from program level outcomes?	Students who are invited or volunteer? Parents who are invited or volunteer? Members of the community who are invited or volunteer? Faculty members and school administrators on a voluntary basis? On a mandatory basis? The local teacher association? Some combination of these?	All schools in the district? Only some schools? All students in the district? Only some students? The local teacher association? Some combination of these?	Recommendations by faculty, reviewed and refined by students and members of the community? Recommendations from parent and community study groups, reviewed and refined by faculty and students? Other procedures that are more appropriate, given a decision as to who is to participate in content decisions? The relationship that is to exist between outcomes recommended, the analysis of social contexts and the analysis of what is known about human development and learning?
Building Or Program Level Outcomes	How broad are they to be? What domains of human activity are they to reflect? Are outcomes at the building or program level to be measured? If so is a particular level of achievement in relation to these outcomes to be required for graduation? How are building or program level outcomes to be related to district level outcomes? If program level outcomes are not to be assessed, are they to be inferred from the achievement of course level outcomes?	Students who are invited or volunteer? Parents who are invited or volunteer? Members of the community who are invited or volunteer? Faculty members and school administrators on a voluntary basis? On a mandatory basis? The local teacher association? Some combination of these?	All buildings within a district that offer a particular program of instruction? All instructors who are responsible for implementing a particular program of instruction in each building? Students who enter required courses that fall within a particular program? Students who enter courses within a program on an elective basis? The local teacher association? Some combination of these?	Recommendations by faculty, reviewed and refined by students and members of the community? Recommendations from parent and community study groups, reviewed and refined by faculty and students? Other procedures that are more appropriate, given a decision as to who is to participate in content decisions? The relationship that is to exist between outcomes recommended, the analysis of social contexts and the analysis of what is known about human development and learning? Should program level outcomes be identified only after district level outcomes have been identified? Should program level outcomes be used as a basis for identifying district level outcomes? Competencies required for graduation?

Table 1 (Cont'd.)

Model Characteristic	Options To Be Considered: OPTIONS AS TO OUTCOMES	OPTIONS AS TO WHO IS TO PARTICIPATE IN OUTCOME DECISIONS	OPTIONS AS TO WHO IS TO BE GOVERNED BY OUTCOME DECISIONS	OPTIONS AS TO PROCEDURES TO BE FOLLOWED IN REACHING OUTCOME DECISIONS
Class Or Course Level Outcomes	How broad are they to be? What domains of human activity are they to reflect? Are outcomes at the class or course level to be measured? If so is a certain level of achievement in relation to these outcomes to be required for graduation? How are class or course level outcomes to be related to program level outcomes? If course level outcomes are not to be assessed, are they to be inferred from the achievement of individual students in a course? Can course level outcomes be treated synonymously with "competencies" to be demonstrated for purposes of graduation? (or the reverse, can competencies required for graduation be demonstrated through the achievement of course level outcomes?)	Students who are invited or volunteer? Parents who are invited or volunteer? Members of the community who are invited or volunteer? Faculty members and school administrators on a voluntary basis? On a mandatory basis? The faculty responsible for a particular program of instruction? The individual faculty member or team of faculty members responsible for a course? The local teacher association? Some combination of these?	All students who enroll in a course where the course is required? All students who enroll in a course as an elective? All faculty responsible for the coordination of a particular program of instruction within each building? The principal of each building? The person responsible for the coordination of a particular program of instruction for a district? The local teacher association?	Recommendations made by an individual teacher or group of teachers responsible for a particular course, and reviewed by appropriate decision making groups? Recommendations made by the person responsible for the instructional program within which a course resides, and reviewed by appropriate decision making groups? Recommendations from parent and community study groups, reviewed and refined by faculty and students? Other procedures that are more appropriate given a decision as to who is to participate in content decisions? The relationship that is to exist between outcomes recommended, the analysis of social contexts and the analysis of what is known about human development and learning? Should course level outcomes be identified only after program level outcomes have been identified? Should course level outcomes be used as a basis for identifying program level outcomes? Competencies required for graduation?
Individual Student Outcomes	Is each student to meet all "required outcomes"? How long may a student take to complete required outcomes? Are there limits to the number and kind of "elective" outcomes that a student may pursue? Are required and elective outcomes to be found only in the context of courses? If required or elective outcomes are to be pursued outside of courses what are the nature of these outcomes?	The student? The student's advisor or instructor? The student and his advisor or instructor through negotiation? Some combination of the above in conjunction with the student's parents? Should the participants in these decisions vary for required outcomes and elective outcomes?	The student involved? The instructor or advisor involved? The student's parents? The principal of a school? The central administrators of a district? The members of a School Board?	Are individual student outcomes to be arrived at through negotiation? Through unilateral determination by students? Through unilateral determination by instructors or advisors? Through some interaction between instructors, students, and perhaps parents? Through the setting of district-wide requirements and insisting that all students meet them? How should these procedures vary for outcomes that are required and outcomes that are elective? How should these procedures vary for children who are mentally, physically or emotionally unable to achieve the outcomes required?

Decisions About Outcome Evaluation And Certification

Once desired learning outcomes have been established,a critical next step in a competency based program is determining how these outcomes are to be evaluated, and how students are to be certified as having met or not met the outcomes required for graduation. This is the aspect of schooling that probably is changed most under a competency based approach to education, for typically outcome measurement is a process not well attended to in schools. In CBE it is central. It is in a sense the heart of CBE, for instruction in a competency based program, as well as graduation and certification, is linked directly to outcome measurement. So are the processes of resource allocation, and program adaptation, and the wherewithall to give meaning to the concept of school accountability. Of equal importance is the fact that the stance a district takes with respect to evaluation and certification has major impact on the level of complexity introduced to the operation of schools, and the resources required for their operation.

For all these reasons the decisions reached by an implementing district about outcome evaluation and certification are of crucial importance. As outlined in the proto model of CBE, the evaluation-certification process can be thought of as involving five separate steps:

- Identifying indicators to be used as evidence of outcome achievement;
- Identifying the measures to be used in obtaining evidence of outcome achievement;
- Identifying the level of performance on a particular measure that will be accepted as evidence of outcome achievement;
- Identifying the procedures to be followed in judging whether performance meets the standards that have been set; and
- Identifying how a school is to certify that a student has or has not met an acceptable level of achievement, and how that level of achievement is to be displayed in relation to standards.

These five steps are obviously interdependent, and decisions made in relation to one will affect decisions in relation to another. Moreover, it is not possible to arrive at decisions about all five items at the same time. For example, identifying indicators acceptable as evidence of outcome achievement can and probably should occur at the time outcomes are identified, but establishing standards for performance can occur only after measures have been selected for the assessment of performance, since performance standards depend directly upon the measures of performance used. Because the authors recognized this complexity, but were unable to deal with it in the present document, separate tables have been prepared to facilitate the decision making process with respect to each of the five steps involved. As in the case of Table 1, the entries in Tables 2a-2e are intended to be illustrative only; they are not exhaustive, and they are not intended to reflect the constraints of local circumstance.

Table 2a. Options To Be Considered In Reaching Decisions About Indicators Of Outcome Achievement

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED*
District Level Outcomes	If district level outcomes are to be evaluated, is performance on standardized achievement measures to be used as evidence of the achievement of some of these outcomes? Are measures of students' performance in relation to course or program outcomes to be used as evidence of the achievement of some district level outcomes? Are judgments of a student's peers, parents or members of a "community evaluation team" to be used as evidence of the achievement of some district level outcomes? Are some district level outcomes to be "competencies" required for graduation? Are outcomes other than competencies required for graduation? Do indicators of outcomes required for graduation assume different properties than indicators of outcomes not required for graduation?
Building Or Program Level Outcomes	Is performance on standardized achievement measures to be used as evidence of achievement in relation to some building or program level outcomes? Are measures of student performance in relation to course level outcomes to be accepted as evidence of outcome achievement at the building or program level? Will a special set of measures be developed and used as evidence of outcome achievement at the building or program level? Are judgments of a student's peers, parents or members of a community evaluation team to be used as evidence of outcome achievement at the building or program level? Are some program level outcomes to be "competencies" required for graduation? Outcomes other than competencies that are required for graduation? Do indicators of outcomes required for graduation assume different properties than indicators of outcomes not required for graduation?
Class Or Course Level Outcomes	Will teacher made tests be accepted as evidence of outcome achievement at the class or course level? Will teacher judgment, based on a review of work done or products produced, be accepted as evidence of outcome achievement at the class or course level? Will peer judgment, based on participation in work activities or a review of products produced, be accepted as evidence of outcome achievement at this level? Will judgments of a student's parents or members of a community evaluation team be accepted as evidence of outcome achievement at this level? Are any course level outcomes to be "competencies" required for graduation? Are outcomes other than competencies required for graduation? Do indicators of outcomes required for graduation assume different properties than indicators of outcomes not required for graduation?

* Options must also be considered as to who is to participate in making decisions about indicators, who is to be governed by such decisions, and the procedures to be followed in making such decisions, but these have not been listed in the present table. Since the listing of such options would involve a great deal of repetition, the reader is referred to columns two, three and four in Table 1 as a point of departure.

Table 2a (Cont'd.)

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED
Individual Student Outcomes	Will teacher judgment, based on a review of work done or products produced, be accepted as evidence of outcome achievement for individual students? Will peer judgment, based on participation in work activities or a review of products produced, be accepted as evidence of outcome achievement for individual students? Will judgments of a student's parents or members of a community evaluation team be accepted as evidence of outcome achievement for individual students?

Table 2b. Options To Be Considered In Reaching Decisions About Measures Of Outcome Achievement

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED*
District Level Outcomes	If some district level outcomes are to be assessed through use of standardized achievement tests, what tests specifically are to be used? If measures of student performance in relation to program outcomes are to be used as evidence of achievement at the district level, what measures specifically are to be used? And how are they to be used for this purpose? If peer or parent judgments, or the judgments of a community evaluation team are to be used as evidence of outcome achievement, what form are these judgments to take? Ratings? Observational records? Evaluation of products produced?
Building Or Program Level Outcomes	If some program level outcomes are to be assessed through use of standardized achievement tests, what tests specifically are to be used? If special measures are to be developed for purposes of assessing building or program level outcomes, what forms should such measures take? Should they be "criterion-referenced" measures? Should they be "domain-referenced" measures? Should they be terminal measures, that is, outcomes assessed only at the completion of the program, or should they be measures that are obtained on outcomes demonstrated throughout the program? If measures of student performance in relation to course level outcomes are to be used as evidence of outcome achievement at the building or program level, what form should such measures take? Should they be criterion-referenced measures? Norm-referenced measures? Domain-referenced measures? Also, how are such measures to be used for this purpose? If peer or parent judgments, or the judgments of a community evaluation team are to be used as evidence of outcome achievement, what form are these judgments to take? Ratings? Observational records? Evaluations of products produced?
Class Or Course Level Outcomes	If teacher made tests are accepted as evidence of outcome achievement at the class or course level, what kind of teacher made tests should be encouraged? Also, should they be treated as "mid-term" or "final" examinations, or should they be designed to assess performance in relation to a particular outcome whenever a student or group of students wishes to be evaluated in relation to that outcome? If teacher judgments in relation to products produced by students is to be used as evidence of outcome achievement, are these judgments to be in the form of ratings? Will there be a description of the strengths and weaknesses of the product, accompanied by an evaluative judgment such as a letter grade or pass-fail grade?

* The reader is referred to Table 1 for a listing of options as to who might participate in making decisions about measures used to assess the achievement of desired outcomes, who might be governed by such decisions, and procedures that might be followed in making such decisions.

Table 2b (Cont'd.)

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED
Class Or Course Level Outcomes (Cont'd.)	If a student's peers, or someone else from the community, is to judge a student's products as evidence of outcome achievement, what form should their judgments take? If teacher or peer judgments are sought about performance outside the context of formal tests and product reviews, what forms should such judgments take and what evidence should be collected in support of such judgments? Should judgments take the form of ratings or letter grades, and be supported by video tapes or observation records? Would the pooled judgments of two or three independent observers about the quality of performance be accepted? If individual student outcomes are to be combined and analyzed for purposes of determining class or course level outcomes, how is this to be done?
Individual Student Outcomes	All of the measurement options listed for class or course level outcomes apply to the assessment of individual student outcomes.

Table 2c. Options To Be Considered In Reaching Decisions About Performance Standards

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED*
District Level Outcomes	If some district level outcomes are to be measured by standardized achievement tests, what norms are to be used as the level of performance desired on the part of students in the district? How is the desired level of performance to be established? If district level outcomes are to be measured in terms of performance in relation to building or program level outcomes, how are performance standards to be established? Are they to be established in terms of the performance of students in a district who have completed a program of study? Are they to be established without any reference to student's actual performance within a program of study? What difference would it make to such decisions if program level outcomes were assessed in terms of criterion- or domain-referenced tests instead of norm-referenced tests? If evidence of outcome achievement is to be in the form of judgments about performance or products, are performance standards to be in the form of a particular rating or grade, for example, a rating of 3 on a 5-point scale or a grade of C on a scale of A to F? Do performance standards involving judgments require statements about the number of times a student's performance is to be observed, and under what conditions, or the number and kinds of products to be reviewed?
Building Or Program Level Outcomes	All of the options outlined in relation to performance standards for district level outcomes apply to the issue of performance standards for building or program level outcomes, though class or course level outcomes would have to be substituted for program level outcomes where appropriate.
Class Or Course Level Outcomes	Are performance standards for outcomes expected from a particular class or course to be criterion-referenced standards or norm-referenced standards? If they are to be criterion-referenced, how are these standards to be established? And do they apply to all students within a class or course, or only to students who can meet such standards within a reasonable period of time and with reasonable resource allocation? If performance standards for course level outcomes are to be norm-referenced, how are the standards to be established? If judgments by teachers or peers about performance or products are to be used as evidence of outcome achievement, are performance standards to be in the form of a particular rating or grade? Do performance standards at the class or course level involving judgments require statements about the number of times a student's performance is to be observed, and under what conditions, or the number and kinds of products to be reviewed?

* See Table 1 for a listing of options as to who might participate in making decisions about performance standards, who might be governed by such decisions, and procedures that might be followed in making such decisions.

Table 2c (Cont'd.)

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED
Individual Student Outcomes	If teacher made tests are accepted as evidence of outcome achievement for individual students, how are the performance standards for these tests to be established? Is an expected performance level to be set without reference to actual performance on the tests involved, or are performance standards to be established in light of student performance on the test? (This is not to be confused with assigning norm-referenced standards; it deals, rather, with being sure that the performance standards set are realistic, given the ability and background of students, the time available for instruction, the availability of instructional resources, etc.) If judgments of pupil work or pupil products are to be taken as evidence of outcome achievement, what form should performance standards take? If judgments by teachers or peers about performance or products, are to be used as evidence of outcome achievement for individual students, are performance standards to be in the form of a particular rating or grade? Do performance standards involving judgments require statements about the number of times a student's performance is to be observed, and under what conditions, or the number and kinds of products to be reviewed?

Table 2d. Options To Be Considered In Reaching Decisions About Evaluating Performance In Relation To Standards

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED*
District Level Outcomes	If district level outcomes are to be measured, how is performance in relation to these outcomes to be evaluated in terms of the standards that have been set for them? Is this to be done by district personnel and reported to parents and teachers? Is it to be done by building level personnel, in conjunction with parents and students, and reported to the school board and community at large? Is it to be done by persons responsible for the administration of instructional programs within the district, and reported to appropriate school authorities? Some combination of these?
Building Or Program Level Outcomes	If building or program level outcomes are to be measured, how is performance in relation to these outcomes to be evaluated in terms of the standards that have been set for them? Is this to be done by district personnel and reported to parents and teachers? Is it to be done by class or course level personnel, in conjunction with parents and students, and reported to the school board and community at large? Is it to be done by persons responsible for the administration of instructional programs within the building, and reported to appropriate school authorities? Is it to be done by teachers responsible for instruction that occurs within programs, and reported to appropriate district personnel? Some combination of these?
Class Or Course Level Outcomes	If class or course level outcomes are measured, how is performance in relation to these outcomes to be evaluated in terms of the standards that have been set for them? Is this to be done by district personnel and reported to parents and teachers? Is it to be done by individual students, in conjunction with parents and members of the community at large? Is it to be done by persons responsible for the administration of the instructional program within which a class or course rests, and reported to appropriate school authorities? Is it to be done by the teacher responsible for instruction within a particular course, with reports going to parents, principals and other appropriate school officials? Some combination of these?
Individual Student Level Outcomes	How is an individual student's performance in relation to the standards set for a particular outcomes to be evaluated? By his or her advisor? By the instructor responsible for facilitating the development of a particular learning outcome? A jury of peers? A jury composed of a peer, a teacher and a member of the community? How should the procedures used in evaluating performance in relation to standards vary for outcomes to be demonstrated for graduation as opposed to outcomes not required for graduation? How should they vary for outcomes relating to "competencies" as opposed to outcomes relating to "capacities" (e.g., knowledge and skills).

* See Table 1 for a listing of options as to who might participate in making decisions about evaluating performance in relation to standards, who might be governed by such decisions, and procedures that might be followed in making such decisions.

Table 2e. Options To Be Considered In Reaching Decisions About The Certification Of Outcome Achievement

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED*
For Outcomes Required For Graduation	Will numerical ratings that correspond to performance in relation to standards set for each outcome to be demonstrated, where the numerical rating reflects less than acceptable performance, acceptable performance, or outstanding performance be used? Will a simple pass-fail or acceptable-non-acceptable description of performance in relation to each outcome to be demonstrated be used? Will there be some written description that summarizes performance in relation to standards set for each outcome to be demonstrated? Will one of the above translate into a "profile" of performance across all outcomes to be demonstrated for graduation? Will one of the above be accompanied by a portfolio of work and performance evaluations, with respect to each outcome to be demonstrated? Should certification and performance display procedures vary for "competencies" to be demonstrated and "capacities" to be mastered?
Outcomes Not Required For Graduation	All of the certification options outlined for required outcomes could be applied to outcomes not required for graduation, but whether resources should be allocated to certify achievement in relation to such outcomes is an open question. An alternative procedure would be simply to list the non-required outcomes that have in fact been demonstrated, or to list as schools do now the various learning experiences (courses) that students have taken part in during the course of their school experience. A third alternative, of course, would be to deal only with performance in relation to required outcomes in the certification process. While logically consistent with the philosophy of competency based education, this would lead to a loss of considerable information that could be of value to the graduate as well as others.

* See Table 1 for a listing of options as to who might participate in making decisions about the certification of outcome achievement, who might be governed by such decisions, and procedures that might be followed in making such decisions.

Decisions About The Design And Operation Of Instructional Programs

Historically, instruction in schools has tended to be organized around subject matter rather than well defined outcomes desired from the educational process. While competency based education is in no way anti-subject matter in its orientation, it does require that instruction be organized primarily in relation to outcomes rather than disciplines or some other organizing framework. To the extent that desired outcomes are tied specifically to a discipline, instruction within a competency based program would still appear to be organized around disciplines, but this would not in fact be the case.

Fortunately, a good deal has been learned during the past half decade about the organization and operation of instructional programs for purposes of targeted outcome achievement. The experience of competency based education with modularized instruction, and the experience gained in mastery learning programs at the elementary and secondary level, have provided a wide base of experience in this regard. So too have the long histories of work in programmed instruction and the development of specific skills within military and industrial settings (Edling, 1972; Gage and Winne, 1975). Surprisingly, instruction in relation to the development of ability (competence) in job-or life-roles outside of a school context also has a long history, though it often goes unnoticed. This history draws heavily on the concept of supervision within the context of professional preparation programs and industry. Collectively, these various histories of experience with instruction toward targeted outcomes provide a rich base for planning instruction within the context of competency based elementary and secondary programs.

Independent of the various structures and procedures employed in competency based instruction, and independent of the subject matter area within which instruction occurs, competency based instructional programs will always have three defining characteristics:

- Both content and process are clearly linked to the outcomes desired;
- Clearly identifiable alternative learning experiences are provided for each outcome to be achieved; and
- Performance in relation to established standards is clearly relied upon as a basis for program placement decisions, including program exits and certification decisions.

Some of the options that adopting districts have in relation to these three features of competency based instruction are listed in Table 3.

Table 3. Options To Be Considered In Reaching Decisions About The Design And Operation Of Competency Based Instructional Programs

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED*
The linkage of content and process to outcomes desired	Is instruction to be "modularized"--that is, divided into well defined units of instruction that take their focus and organization from the particular outcomes to be achieved? If so,are the instructional modules to be "packaged" so that students may work through them at their own leisure? Are instructional modules to be thought of more broadly than individual learning packets, and include in them some lecture and small group learning activities? Will the concept of modularized instruction apply to instruction for purposes of competency acquisition and demonstration, or will a different view of instruction have to emerge to accommodate the demands of competency acquisition? Will the concept of modularized instruction apply to the achievement of outcomes that are primarily attitudinal or social in nature? If competency based instruction is not organized within the framework of modules, how is it to be organized? Are courses still an appropriate unit of organization for instruction? Are individual instructors? Are teams of instructors? What are the implications of competency based instruction for the organization and use of instructional resource centers? What are the implications of competency based instruction for the organization and use of textbooks and published curricular material? Apart from the organizational implications of competency based education, what are its implications for instructional strategies or methods? Are some kinds of outcomes acquired better through use of particular instructional strategies or methods? Are some strategies and methods effective in relation to a particular outcome for some children, but not for others? What do we need to know about outcome-aptitude-treatment interaction that we do not presently know?
The availability of alternative learning experiences for the achievement of outcomes	How many alternative learning experiences should be available for the achievement of a particular outcome , and how should these experiences be different? For example, should there be at least two learning options, each of which makes use of quite different kinds of learning experiences? Should there be a range of options available for both gifted and average children, as well as children who will require more time and effort to achieve the outcomes desired? Should alternative learning outcomes be tailored to fit children who have "preferred" learning styles? To what extent should alternative learning experiences reflect the interests and preferences of instructors rather than students?

* See Table 1 for a listing of options as to who might participate in making decisions about the design and operation of competency based instructional programs, who might be governed by such decisions, and procedures that might be followed in making such decisions.

Table 3 (Cont'd.)

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED
A reliance on performance in relation to standards as a basis for program placement decisions	Should there be the requirement that students engage in learning experiences oriented to the achievement of a particular outcome only after evidence has been obtained as to a student's standing with respect to that outcome? (The matter of pre-assessment, and program placement on the basis of pre-assessment data.) Should evidence of a student's progress toward the achievement of a particular outcome be collected systematically during the course of instruction, and used as a basis for planning next steps in the instruction-learning process? If so, how frequently should such information be obtained? What measures of progress in relation to outcome achievement should be used? Should progress measured be reported? How should such information be reported to students? What is the student's responsibility for acting upon such information? Should students be required to demonstrate mastery of a particular outcome before working on other outcomes that are assumed to depend on its achievement? How many outcomes should a student be permitted to work toward at any one time? How long should a student be permitted to work on any particular outcome, and how many times should a student be permitted to challenge an outcome without demonstrating mastery? Are all outcomes required for graduation to be achieved before a student can graduate? What would happen if all but one or two required outcomes were able to be demonstrated, and additional instruction seemed to make no difference in terms of the mastery of the one or two outcomes uncompleted? Are the standards set for outcome achievement never to be modified to accommodate individual learner circumstance, or will the realities of settings and individual characteristics be allowed to enter decisions about outcome mastery? To what extent will outstanding performance in relation to outcomes desired, as well as poor performance, be recognized in the certification process? Will certification and the description of performance in relation to standards be designed to provide as much information as reasonably possible about the strengths and abilities of individual students, or will it be designed to indicate only that a student has met or not met graduation requirements.

Decisions About Personalizing The Instruction-Learning-Evaluation Process

As pointed out in Chapter 3, the press to personalize the instruction-learning-evaluation process comes from two sources. The first is a philosophic commitment to the need to adapt instruction, and the outcomes to be achieved through instruction, to individual differences in learners. The second is the recognition that within a mastery learning approach, learners must have access to alternative means of achieving desired outcomes and varying amounts of time to bring to their achievement. The last entries in Table 3 illustrate how the concept of performance standards in relation to designated outcomes conflicts with the concept of individual differences in the interests and abilities of learners, even at the point of graduation-certification decisions.

Independent of the reasons for wishing to personalize the instruction-learning-evaluation process within the context of competency based education, the fact is that there is no option to do so. Moreover, more than time and learning alternatives must be varied, for when outcomes take the form of competencies there must be provision for the negotiation of what those outcomes are to be in light of the context in which they are to be demonstrated. As Schalock has pointed out elsewhere (1974), so long as the outcomes of schooling are defined primarily in terms of the mastery of knowledge, the personalization of instruction and assessment--with the exception of having to provide alternative learning experiences and varying amounts of time--is optional. As outcomes become more complex, however, and demanding of performance in job or life role situations, the instruction-learning-evaluation process must of necessity become more personal and idiosyncratic in its operation.

Given this requirement of competency based education, how is its personalization to occur? Various means are suggested within the defining features of CBE (see p 18), and these are elaborated in Table 4. While the simple listing of options available to program planners does not reflect the interdependence between decisions about the various options listed, it does provide a point of departure for thinking through the personalization process.

Table 4. Options To Be Considered In Reaching Decisions About Personalizing The Instruction-Learning-Evaluation Process

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED*
Outcomes required for graduation	To what extent will students be able to negotiate the outcomes required for graduation? Are these to be fixed by a school district, with all students having to demonstrate mastery of the same set of outcomes? Will a district require no specific outcomes, but indicate that appropriate outcomes must be established and demonstrated by each student in order to graduate? Some combination of these? For example, a non-neogtiable set of outcomes, and a negotiable set? Are indicators of outcome achievement open to negotiation? For all outcomes required for graduation? Only for competencies to be demonstrated for graduation? Are indicators of outcome achievement established by a district, but students permitted to negotiate which of the accepted set they wish to use? Are the procedures to be used in assessing outcome achievement to be negotiable? Are they to be fixed? Or will students be able to negotiate only within an "accepted set" of measures adopted for the assessment of particular outcomes? Some combination of the above? Will this in part depend on the indicators and measures of outcome achievement to be used? To what extent will the standards set for performance in relation to a particular outcome be negotiable? Will this in part depend on the indicators and measures of outcome achievement to be used? If standards are to be negotiated, what meaning does the concept of performance standards have? If performance standards cannot be negotiated, what meaning does the concept of a personalized approach to education have? To what extent are the learning activities to be pursued while working toward the achievement of particular outcome to be personalized? To what extent will the environments within which outcome achievement is to be pursued be personalized? For example, is learning to be confined to a particular classroom? A classroom, a library and a learning resource center? A number of classrooms within a particular school? Or can it be extended, through negotiation, to a number of schools? A school and a community college? A school and a community-at-large? To what extent will time be free to vary in the instructional process? Are time limitations to be placed on the achievement of particular outcomes -- for example, a week, a month, or a year? Are time constraints to be put on some outcomes and not others? Within whatever time constraints that exist, will there be limits placed on the number of outcome demonstration attempts permitted without penality? For example, can a student attempt to demonstrate mastery of a particular outcome three times without penalty? Twice? Five times? Does the number of demonstration attempts allowed interact with the length of time permitted for a competency demonstration? Does

* See Table 1 for a listing of options as to who might participate in making decisions about personalizing the instruction-learning-evaluation process, who might be governed by such decisions, and procedures that might be followed in making such decisions.

Table 4 (Cont'd.)

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED
Outcomes required for graduation (cont'd.)	the number of demonstration attempts vary with the ability of the students involved? With the nature of the outcome to be demonstrated? What is the maximum number of demonstration attempts feasible in terms of the time and resources available before students must be required either to re-define the outcome being worked toward or renegotiate the performance standards that have been set for outcome achievement?
Outcomes not required for graduation	To what extent will the instruction-learning-evaluation process be personalized in relation to outcomes not required for graduation? Will it be greater than for outcomes that are required? Will it be less? Will it depend on the nature of the outcomes being worked toward? To what extent does this set of decisions interact with decisions made about performance standards and evidence of outcome achievement for non-required outcomes? To what extent do such decisions interact with resource availability and philosophic commitment?

Decisions About Improving The Instruction-Learning-Evaluation Process

As indicated repeatedly, a dominant feature of competency based education is its incorporation of systems principles as a basis for program improvement. As applied to education the essential features of systems theory are (a) clarity of outcomes to be achieved; (b) the design of instruction-learning programs to achieve the outcomes desired; (c) the systematic assessment of achievement in relation to outcomes desired, and the adaptation of online instruction as needed on the basis of outcome information; and (d) the adaptation and improvement of the instructional program as a whole on the basis of a wide variety of data about program effectiveness. Of primary importance in this regard are data coming from formative and summative evaluations of (a) the process involved in program operation, including the reaction of participants to the program; (b) the performance of staff within the program; and (c) studies on the costs and benefits associated with program operation, including the achievement of learning outcomes desired from the program, and data from research studies designed to determine the long-term effects of the program. Some of the options available to school districts relative to these various processes are provided in Table 5.

Decisions About Managing The Process Of Schooling

The options for program design presented in Tables 1 through 5 deal only with the defining characteristics of CBE. There remain the four enabling characteristics, and these obviously present a similar range of design options for program planners. Moreover, the decisions to be made about these characteristics are as complex and far-reaching as decisions about any of the defining features of CBE programs, and are just as interdependent. Because of space considerations, however, and because the reader probably has as much detail as can be managed at this point about program options, further attention will not be given these characteristics in the present monograph. Paper #3 in the series of papers coming from the Oregon Competency Based Education Program deals with these characteristics in greater detail, and so the interested reader is not without further access to such information. The implications of these characteristics are reasonably straightforward, however, and a careful reading of Chapter 2 (see p. 18) will suggest a variety of options as to how they might be implemented.

Table 5. Options To Be Considered In Reaching Decisions About Improving The Instruction-Learning-Evaluation Process

MODEL CHARACTERISTIC	OPTIONS TO BE CONSIDERED
Formative and summative evaluation of program operations, including the reaction of participants to the program	To what extent are formative evaluation processes to be incorporated as an ongoing aspect of the program? What is the nature of the formative evaluation design? What program operations is it to be directed toward? What provisions are there for data from the formative evaluation studies to enter program adjustment decisions? Who in the school setting is to collect such information? How wide a range of program participants is included in the evaluation design, and what proportion of the various groups of participants is included in the evaluation sample? Who is to summarize such information and ready it for use by decision makers?
Formative and summarive evaluation of the performance of staff within the program	To what extent is the performance of staff to be evaluated? What will be attended to in the evaluation of staff performance? For example, will evidence of outcome achievement on the part of students be considered? How is evidence on staff performance to be obtained, and who is to obtain it? What uses are to be made of evidence about staff performance? Who is to see the information collected about staff performance?
Summative evaluation of the costs and benefits associated with program operation, including learning outcomes achieved	Will evidence on the costs associated with program operation be systematically collected? If it is, what aspects of the program are to be costed, and what categories of cost are to be reported? In addition to learning outcomes achieved, how are program benefits to be defined? Who is to collect evidence on costs and benefits? How is such evidence to be used in decision making about the program? Who is to see the cost and benefit information collected?
Research on long term program effects	Is a program of research on the long term effects of the program to be undertaken? If it is, how should the follow-up study be designed? How should long term effects be defined and measured? How large a sample of graduates need to be followed in the study? How long should graduates be followed? Who should do such a study? How are the results of such a study to be used in making decisions about the program? Who is to see the results of such a study?

*See Table 1 for a listing of options as to who might participate in making decisions about personalizing the instruction-learning-evaluation process, who might be governed by such decisions, and procedures that might be followed in making such decisions.

PART III

PATTERNS AND CONTEXTS: PROGRAM VARIATIONS THAT ACCOMMODATE DIFFERENCES IN COMMUNITIES AND SCHOOLS

OVERVIEW

Part III defines three alternative models of CBE, and traces the implications of two of the models for complexity of program operation. All three models are discussed in relation to the variety of models that are possible for CBE programs, and the variety of program variations possible from any particular model. The relationship between the label assigned a model and the differentiating characteristics of a model is also discussed.

After analyzing the various defining and enabling characteristics of CBE programs as sources of variation within the two models that are compared, additional sources of variation within models are considered. The section closes with a final second look at the meaning of the concept of alternative models in competency based education.

Throughout Part III the definition of a model of competency based education as "...a well defined, easily recognizable, and functionally different pattern of emphasis or interpretation that can be given the defining and enabling characteristics of CBE" (p. 25) is adhered to, and its implications discussed.

Three Illustrative Models Of Competency Based Education

In Chapter I a model of competency based education was defined as "...a well defined, easily recognizable, and functionally different pattern of emphasis or interpretation that can be given the defining and enabling characteristics of CBE" (p 25). Defined in this way it is possible to establish an essentially endless number of models or proto-models of CBE, because the various characteristics that comprise a CBE program can be combined in many different ways and the options available for defining each characteristic are for all intents and purposes unending (see Part II). By choosing to combine characteristics in a particular way, or by choosing to emphasize a particular characteristic over others, it is possible to establish an array of proto-models of CBE that will accommodate the array of different communities and schools that must be served by such models.

For purposes of the present monograph, three alternative models of CBE are described; they will serve to illustrate the concept of model as it is being used in the monograph. Two of the models are distinguished primarily by the context in which instruction and evaluation take place. These have been termed the school-based and community-based models; they are the two models dealt with in greatest detail. The third model is distinguished by the approach taken to the organization of schools, and has been labeled the alternative schools model. This is a considerably different kind of model than the first two, and has been included primarily as an illustration of the types of variations possible in developing models of CBE.

Before proceeding with the description of the models, attention needs to be directed to the relationship between the label or title given a model and its operational characterstics. Ideally, this relationship should be reasonably close. The label given a model should reflect and convey to others the essential focus or differentiating feature of the model. In this sense the label given a model serves a major communication function.

No matter how carefully selected, however, a label for a model cannot convey all of the characteristics of a model. In addition to the differentiating characteristic reflected in its title, every model of CBE must assume a particular pattern of variation in relation to the nine characteristics that make up the defining and enabling features of a competency based program. Thus, for example, a school-based model may differ from a community-based model on the nature of outcomes to be achieved, the nature of measures to be used as evidence of outcome achievement, and the degree to which the instruction-assessment process is personalized, in addition to differing on where instruction and evaluation is to take place. On the other hand, school and community-based models might take quite similar positions on these characteristics, but differ on other characteristics such as approach to goal setting and program management. Recognizing the range of variability in the defining and enabling characteristics of models, beyond what is suggested by the label assigned a model should serve to reinforce for the reader both the arbitrariness of model labels and the endless variety that is possible across models and within model based programs.

Regardless of the arbitrariness involved in labeling models, and the potential for variation that exists across and within models, the differences between models should be sufficiently large and sufficiently logical in its tie to labels that the essential differences between models can be inferred from the model label. The school-oriented and community-oriented models described in the pages that follow meet this criterion. The term community-oriented implies a great deal about the manner in which decisions are made relative to outcome definition and program operation, about the locus of instruction and assessment, and even about who is to be involved in the instruction-assessment process. The reverse is true for a model that is school-oriented. While there is nothing inherent in the model building process that forces this kind of logical relation between model label and model characteristics, it is good practice and it does have high utility from the point of view of communication.

A School-Oriented Model

As implied by its label, a school-oriented model of competency based education is one where the processes of schooling are carried out largely within the context of school buildings. For purposes of the present monograph, this includes the processes of outcome definition and decision making relative to the design and operation of schools, as well as the processes of instruction, evaluation and certification. Accordingly, the locus of schooling, and the locus of decision making affecting schooling, are essentially the same in the proposed school-oriented model of CBE as in most schools in the United States today.

In keeping with the previous comments about a label is conveying only a limited amount of information about the characteristics of the model it represents, the fact of being school-oriented does not convey much that has not already been said about the operational characteristics of such programs. The label implies nothing, for example, about the nature of the outcomes desired from schooling, the nature of the evidence required as to the achievement of outcomes, the nature of instructional programs offered by a school, the extent to which the instruction-evaluation process is to be personalized, the manner in which a model based program is to be adapted and improved, or how a model based program is to be managed and governed. It does set constraints on the kind of competencies to be demonstrated, or at least on the kind of indicators to be used as evidence of competency attainment. If competency demonstration is to be limited to the school setting, it will be possible to infer competence only in out-of-school settings. Beyond these few constraints, however, the fact of being school-oriented does not convey the stance taken by the model on the various defining and enabling characteristics that must be reflected in all models. Decisions about these characteristics tend to be independent of model label--at least so far as these characteristics are in fact independent of the differentiating characteristic(s) of the model.

An illustrative set of decisions about such matters is provided in the sections of the monograph dealing with primary and secondary sources of variation within model defined programs.

A Community-Oriented Model

As implied by its label, a community-oriented model of competency based education is one where many of the functions of schooling are carried out in the context of the community at large instead of in schools, and where there is high involvement by members of a community in decisions affecting the design and operation of schools. Given the defining and enabling characterstics of CBE, the community-oriented label suggests at least three areas where there would be high community involvement: (a) the definition of outcomes desired from schooling, especially those having to do with the ability to function in life roles outside of a school context (competencies); (b) instruction and assessment in relation to competency acquisition and demonstration; and (c) decisions affecting the design and operation of the schools within a community generally.

As in the case of a school-oriented model of CBE, a community-oriented model implies nothing about the nature and range of outcomes to be achieved, the nature and range of indicators to be looked to as evidence of outcome achievement, the extent to which the instruction-evaluation process is to be personalized, the manner in which the program is to be adapted and improved, or the specific manner in which the program is to be managed and governed. Decisions about such matters must be made, however, and an illustrative set of these decisions is also provided in the sections of the monograph dealing with primary and secondary sources of variation within model defined programs.

An Alternative Schools Model

A competency based approach to education lends itself unusually well to the concept of alternative schools (Smith, 1974). The insistence upon an explicit set of outcomes to be achieved, and the recognition that the instruction-evaluation process in relation to outcome achievement must be personalized, provide the essential orientations to schooling that permit alternative schools to be maintained within a community (or alternative programs to be maintained within a school). Whether such a focus should be taken and treated as a model of CBE, however, is another matter. As a label for a model it does not have the same focal properties as the school-oriented and community-oriented labels; that is, no implications can be drawn from the label about the nature of educational programs fostered by the model. It also has the same limitations that the school- and community-oriented labels have, because it implies nothing about what the outcomes of schooling should be, what indicators should be accepted as evidence of outcome achievement, how instruction is to take place, and the like. On the other hand, the label does convey a particular set of meanings--namely, that a community will maintain alternative approaches to schooling.

And here is the dilemma. Who is to say whether this kind of meaning is more or less useful than the meaning implied by the labels school-oriented and community-oriented? As indicated previously (see p 66), the selection of labels for the description of a model of competency based education is fundamentally a matter that has to do with communication,

and beyond the requirement that they reflect identifiable and meaningful patterns of variation within model based programs, the primary requirement of such labels should be their power to communicate. Decisions as to the defining and enabling characteristics of a model must still be made, and though these are not totally independent of the focus given a model by its label, they are decisions that must be made for each model no matter what its label.

Within this context, it would seem to be permissable for a model of CBE to carry any label so long as it conveys to others one or more essential properties highlighted by the model. It would seem permissable, for example, for a model to be personalized, or humanistic, or research oriented, depending on the properties to be highlighted. As with the design of CBE programs the labels to be given models of CBE are arbitrary, and essentially without limit. One label would seem to be as good as another so long as it conveys the focus intended by the designers of the model.

Primary Variations Within Models That Have Impact On The Nature And Cost of Schooling

For purposes of the present monograph, primary sources of variation in model characteristics are equated with the defining features of CBE programs. It will be recalled from Chapter 2 that these are

- The nature and range of outcomes to be achieved;
- The nature and range of outcome evaluation and certification procedures;
- The nature and range of instructional programs offered;
- The nature and range of personalization within the instruction-evaluation process; and
- The nature and range of program adaptation-improvement activities.

The decisions made with respect to each of these various characteristics are the essential decisions to be made in designing model based programs, because they are the decisions that determine the nature and content of such programs. Tables 1-5 in Part II of the monograph contain some of the options available to decision makers in relation to these various program characteristics.

In the pages that follow, an imaginary set of decisions around each of these characteristics is described for both the school-oriented and community-oriented models of CBE. The imaginary decisions reflect program options that follow logically from the foci of the two models,

though the reader must understand that the options selected do not imply that all school- and community-oriented models of CBE will reflect such options. To highlight the differences between the two models, and the implications of these differences for the nature and cost of schooling, an estimate of the impact of their differences on the complexity of schooling is provided in theform of a profile that compares the relative complexity of schooling under the two models. This estimate is provided for each of the defining and enabling characteristics of the two models. Because of the complexity that would be involved the alternative schools model has not been included in these comparisons.

The Nature And Range Of Outcomes To Be Achieved

On the assumption that outcomes relating to performance in life roles are likely to be more broadly stated in a community-oriented model than a school-oriented model, and on the assumption that evidence of the attainment of such outcomes is more likely to involve performance in out-of-school settings, it has been assumed that the competencies to be demonstrated for purposes of graduation from the community-oriented model will be more complex and demanding than those required for graduation from the school-oriented model. By making the further assumption that non-competency outcomes desired from schooling will be comparable across the two models, it is possible to chart the relative complexity likely to be contributed to program operation in the two models through outcome definition. An approximation of this complexity is shown schematically in Figure 5.

COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
= Community-Oriented Model of CBE
= School-Oriented Model of CBE
NATURE AND RANGE OF OUTCOMES TO BE ACHIEVED
NATURE AND RANGE OF OUTCOME EVALUATION AND CERTIFICATION PROCEDURES
NATURE AND RANGE OF INSTRUCTIONAL PROGRAMS OFFERED
NATURE AND RANGE OF PERSONALIZATION IN THE INSTRUCTION-EVALUATION PROCESS
NATURE AND RANGE OF PROGRAM ADAPTATION-IMPROVEMENT ACTIVITIES

Figure 5. The complexity contributed to program operation in community and school oriented models of CBE as a result of outcome definition.

The Nature And Range Of Outcome Evaluation And Certification Procedures

In keeping with the same rationale that led to the assumption of greater complexity in the outcomes desired from a community-oriented model of CBE, it is assumed that the measures to be obtained as evidence of outcome achievement will also be more complex. This comes from the assumption that indicators of competency demonstration are likely to call for performance in out-of-school settings, and that standards set for performance in such settings are likely to be reasonably high. Assuming that the measures to be used in obtaining evidence of non-competency outcomes will be comparable across models, an estimate of the contribution of evaluation and certification procedures to the complexity of model based programs can be shown as follows.

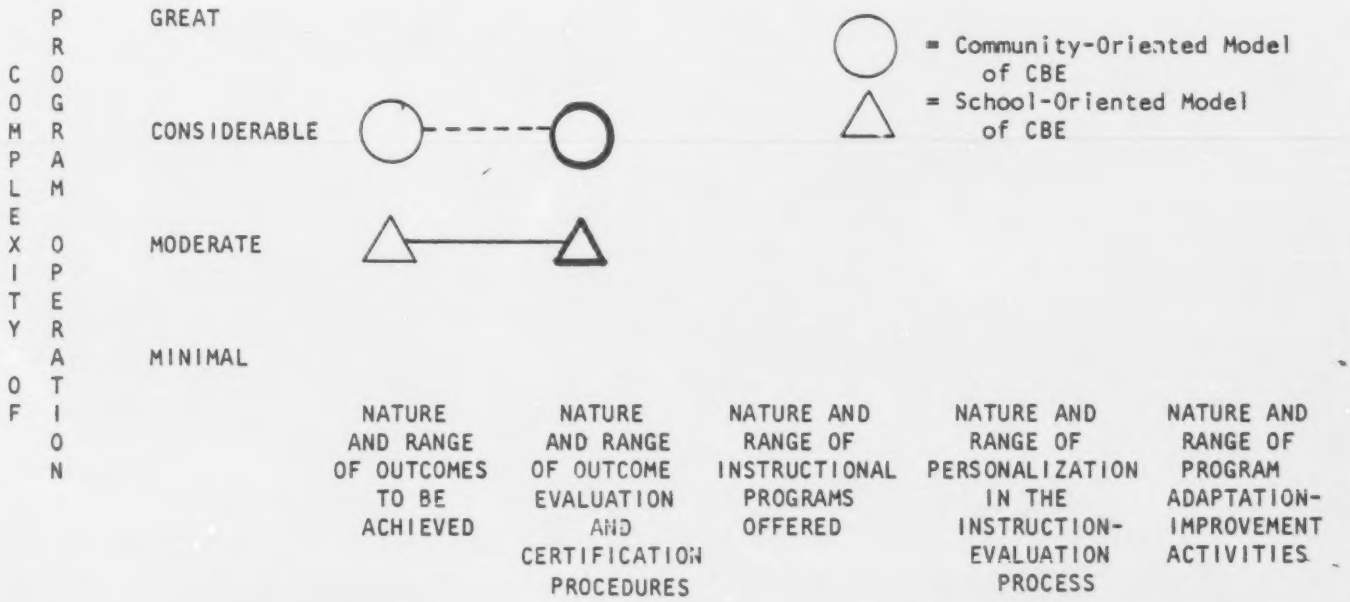
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
= Community-Oriented Model of CBE
= School-Oriented Model of CBE
NATURE AND RANGE OF OUTCOMES TO BE ACHIEVED
NATURE AND RANGE OF OUTCOME EVALUATION AND CERTIFICATION PROCEDURES
NATURE AND RANGE OF INSTRUCTIONAL PROGRAMS OFFERED
NATURE AND RANGE OF PERSONALIZATION IN THE INSTRUCTION-EVALUATION PROCESS
NATURE AND RANGE OF PROGRAM ADAPTATION-IMPROVEMENT ACTIVITIES

Figure 6 The complexity contributed to program operation in community and school oriented models of CBE as a result of evaluation and certification procedures linked to competency demonstration.

The Nature And Range Of Instructional Programs Offered

Because of the greater range and complexity of outcomes that are likely to be pursued in a community-oriented model of schooling, and because members of a community are likely to assume the role of instructors in relation to some of these outcomes in settings outside of the school, it can be assumed that the instructional programs offered by a district that operates from a community-oriented model of CBE will be more numerous and far-reaching. The difference in the level of complexity introduced to program operation as a result of such differences in instruction is illustrated in Figure 7.

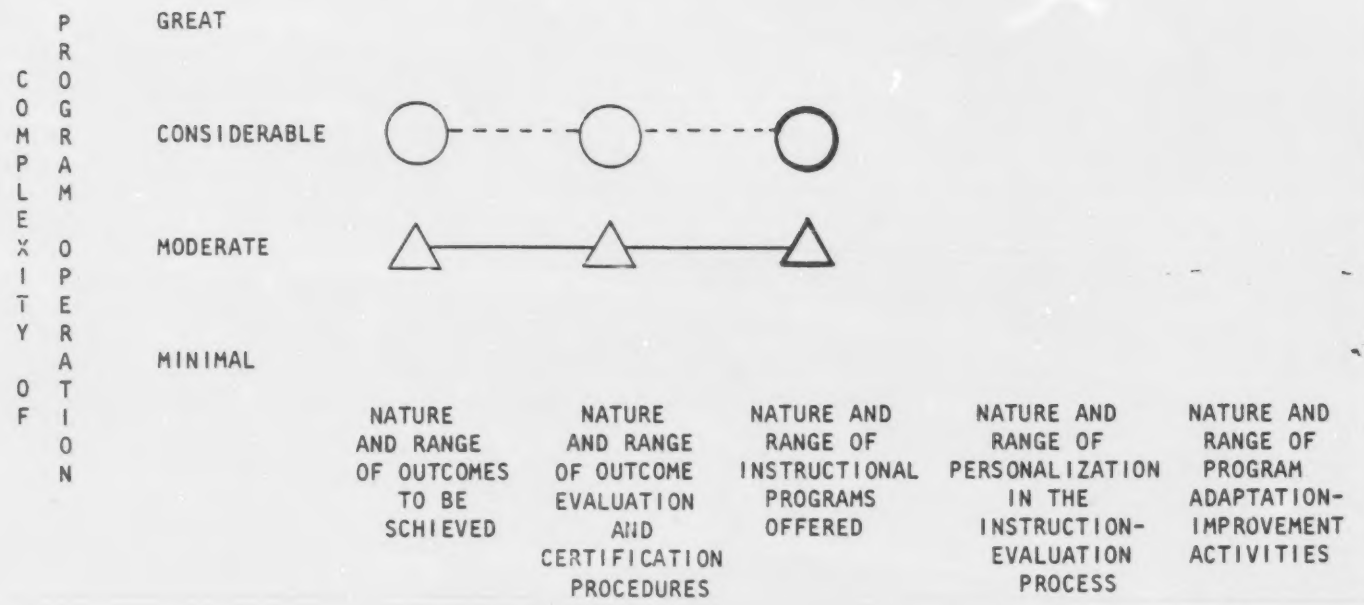
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
NATURE AND RANGE OF OUTCOMES TO BE SCHIEVED
NATURE AND RANGE OF OUTCOME EVALUATION AND CERTIFICATION PROCEDURES
NATURE AND RANGE OF INSTRUCTIONAL PROGRAMS OFFERED
NATURE AND RANGE OF PERSONALIZATION IN THE INSTRUCTION-EVALUATION PROCESS
NATURE AND RANGE OF PROGRAM ADAPTATION-IMPROVEMENT ACTIVITIES

Figure 7 The complexity contributed to program operation in community and school oriented models of CBE as a result of the instructional programs linked to competency acquisition.

It should be pointed out that while it is reasonable to assume there will be a greater range of instructional programs offered within community-oriented CBE programs than within school-oriented programs, this need not be the case. It is possible, for example, that community-oriented programs will have fewer resources to give to instruction toward non-competency outcomes as a result of the greater expenditure of resources for the achievement of competency defined outcomes, and as a result have a range of instructional programs across all outcomes that is essentially comparable to school-oriented programs. This assumes, of course, that school-oriented programs would in fact provide a wider array of alternative learning experiences for the achievement of non-competency outcomes than its community-oriented counterpart--which at best is a tenuous assumption.

Be this as it may, the likelihood of community-oriented CBE programs offering instructional experiences of greater range and complexity than programs based on school-oriented models still holds, and Figure 8 reflects this likelihood.

The Nature And Range Of Personalization Within The Instruction-Evaluation Process

It has been argued throughout the monograph that the definition of educational outcomes in terms of performance in relation to life roles forces outcome definition, indicators of outcome achievement, performance standards in relation to outcome achievement, and instruction supporting outcome achievement to become highly personalized. This is due to the idiosyncratic nature of the contexts in which such outcomes are to be demonstrated, and the fact that "successful" performance in relation to life roles assumes a multitude of forms.

On the basis of this argument, and on the previously stated assumption that community-oriented programs will place greater emphasis on the acquisition and demonstration of role related competencies, it follows that community-oriented models of CBE will involve a greater degree of personalization in the instruction-evaluation process than school-oriented models. Assuming that the complexity of instructional programs is closely related to the extent to which they are personalized, the relationship between school- and community-oriented models of competency based education so far as complexity of operation is concerned can be illustrated as in Figure 8.

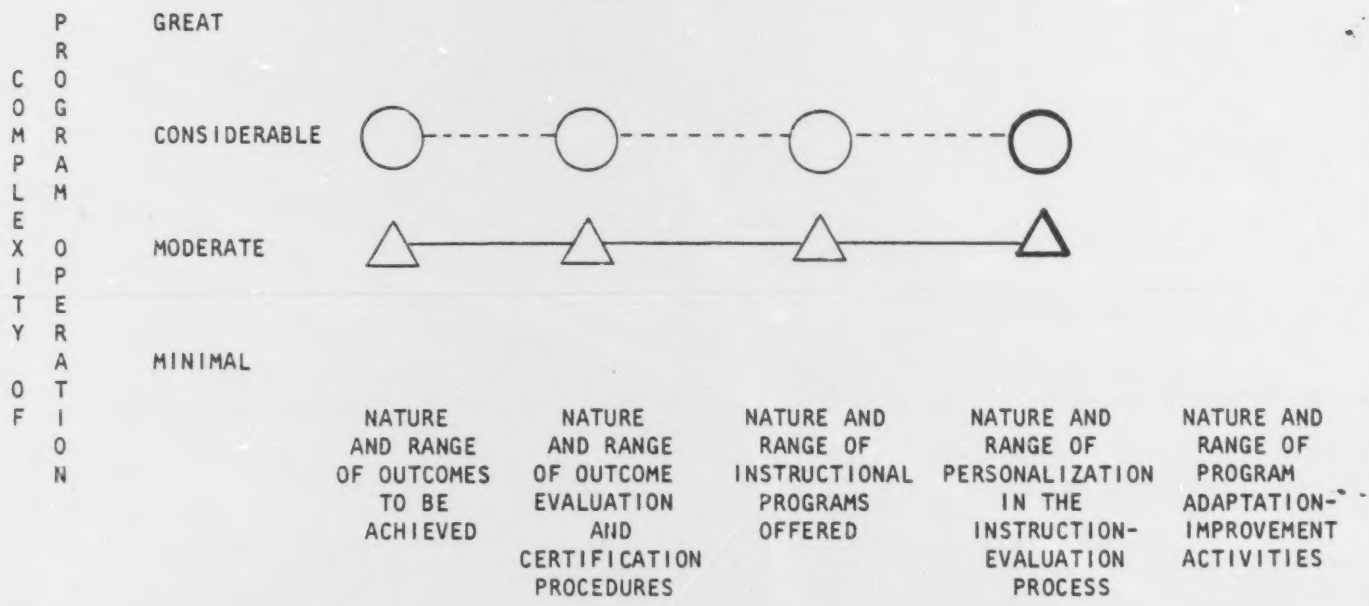
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
NATURE AND RANGE OF OUTCOMES TO BE ACHIEVED
NATURE AND RANGE OF OUTCOME EVALUATION AND CERTIFICATION PROCEDURES
NATURE AND RANGE OF INSTRUCTIONAL PROGRAMS OFFERED
NATURE AND RANGE OF PERSONALIZATION IN THE INSTRUCTION-EVALUATION PROCESS
NATURE AND RANGE OF PROGRAM ADAPTATION-IMPROVEMENT ACTIVITIES

Figure 8 The complexity contributed to program operation on community and school oriented models of CBE as a result of the extent to which the instruction-evaluation process is personalized.

As in the case of instructional experiences offered by school and community-oriented programs, however, the likelihood of greater personalization within community-oriented programs does not necessarily lead to its occurence. The extent to which a model is to emphasize the personalization of instruction is as much a matter of philosophic preference as it is a procedural necessity, so models can differ immensely with respect to the position they wish to take with respect to this aspect of competency based education. As a consequence it is possible that school-oriented models of CBE could insist upon the personalization of all learning and assessment activities, and thus outdo community-oriented models that emphasize only the personalization of instruction and assessment with respect to competency acquisition, but not with respect to non-competency outcomes.

The Nature And Range Of Program Adaptation-Improvement Activities

At first glance there is no reason to assume that school-oriented and community-oriented models of CBE would differ with respect to their involvement in program adaptation and improvement activities. These are in a sense reflective, and to some extent administrative activities, and there are no apparent reasons why school and community-oriented programs should differ with respect to their implementation.

A two-part argument can be built, however, for the likelihood of community-oriented programs being more involved in such activities than school-oriented programs independent of design decisions. Both arguments tie once again to the assumption of greater commitment on the part of community-oriented programs to outcomes that take the form of competencies, and the attending assumption of greater involvement by members of a community in the instruction-evaluation process as well as in policy decisions affecting the design and operation of schools. Given this point of view the first part of the argument holds that there will be greater community involvement around instruction in relation to competence acquisition (in order to accommodate differences in learners and settings) than around the achievement of other outcomes. The second part of the argument is that the greater involvement of members of a community in the education process when they are implementing a community-oriented program will cause them to be more familiar than their counterparts in school-oriented programs with the quality of programs offered, and because of this familiarity they will force school authorities to attend more closely to program adaptation and improvement activities than their counterparts.

On the assumption that greater involvement in program adaptation and improvement activities leads to greater complexity in program operation, the level of complexity introduced to school and community-oriented programs through their involvement with such activities can be depicted as in Figure 9.

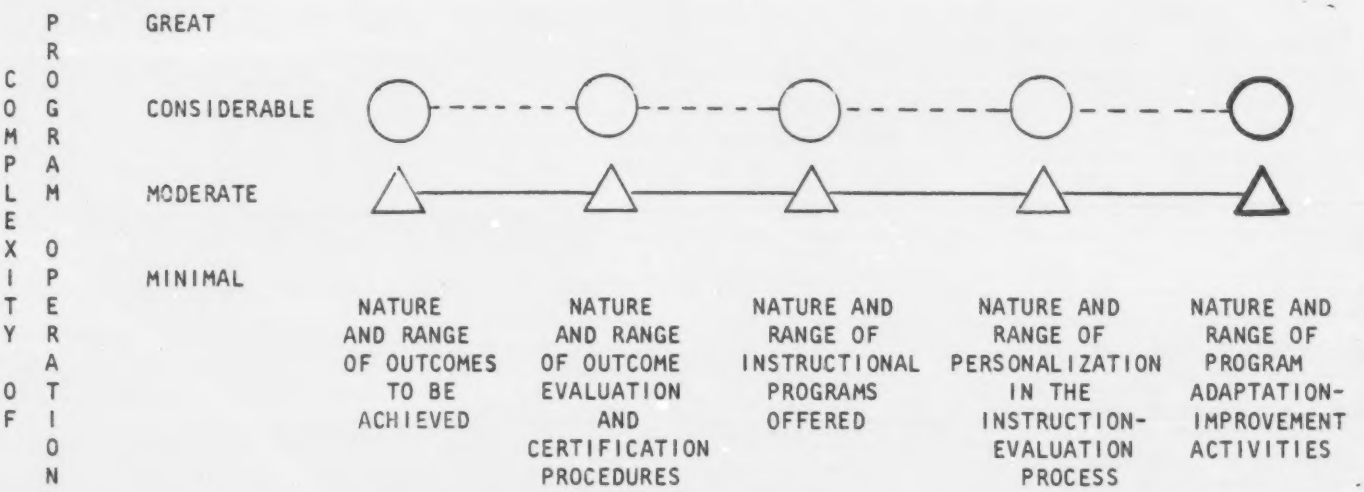
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
NATURE AND RANGE OF OUTCOMES TO BE ACHIEVED
NATURE AND RANGE OF OUTCOME EVALUATION AND CERTIFICATION PROCEDURES
NATURE AND RANGE OF INSTRUCTIONAL PROGRAMS OFFERED
NATURE AND RANGE OF PERSONALIZATION IN THE INSTRUCTION-EVALUATION PROCESS
NATURE AND RANGE OF PROGRAM ADAPTATION-IMPROVEMENT ACTIVITIES

Figure 9. The complexity contributed to program operation on community and school oriented models of CBE as a result of the extent to which program adaptation-improvement activities are pursued.

Secondary Variations Within Models That Impact The Nature And Cost Of Schooling

Rightly or wrongly the assumption has been made that programs stemming from community-oriented models of CBE are likely to be more complex in their operation than programs stemming from school-oriented models, at least with respect to the defining features of such programs. But what about the enabling characteristics of CBE programs? Are community-oriented programs more complex with respect to these characteristics, or less complex? Since all CBE models and model based programs must attend to these characteristics, the kind of analysis just completed for defining characteristics will be extended now to enabling characteristics. A description of the enabling characteristics associated with CBE programs appears on pp 21 and 22 of the monograph.

Establishing The Outcomes Desired From Schooling

The press within a CBE approach to establish the outcomes desired from schooling on the basis of a careful analysis of the social contexts which graduates of school programs will be entering, and an analysis of what is known about human development and learning, pertains equally to school-oriented and community-oriented models. Community-oriented models, however, are likely to proceed in considerably different ways than school-oriented models in carrying out such analyses, and in arriving at the outcomes desired of schooling once these analyses have been completed. Because of the greater involvement anticipated for members of a community in these activities when a community-oriented model of schooling is being implemented, the projected impact of such activities on the complexity of program operation in both school- and community-oriented models can be depicted as in Figure 10.

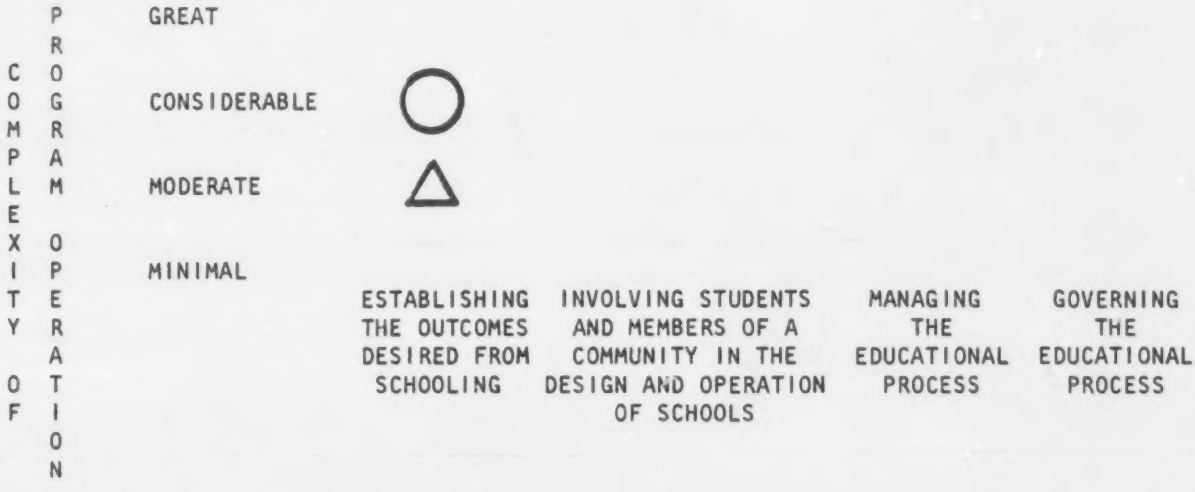
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
ESTABLISHING THE OUTCOMES DESIRED FROM SCHOOLING
INVOLVING STUDENTS AND MEMBERS OF A COMMUNITY IN THE DESIGN AND OPERATION OF SCHOOLS
MANAGING THE EDUCATIONAL PROCESS
GOVERNING THE EDUCATIONAL PROCESS

Figure 10. The complexity added to program operation in community and school oriented models of CBE as a result of procedures followed in establishing the outcomes desired from schooling.

Involving Students And Other Members Of A Community In The Design And Operation Of Schools

By definition programs stemming from a community-oriented model of CBE rank high on this characteristic. Members of a community are to assume an active role in the instruction and assessment process, and students as well as members of the community are to assume an active role in policy decisions affecting the design and operation of such programs. This is not to imply that programs stemming from school-oriented models of CBE will avoid contact with members of the community, but it is assumed that this contact will be much more cursory and carried out in quite different ways than it will within programs stemming from community-oriented models.

Given the assumption that high community involvment in the design and operation of school programs adds to the complexity of their operation the likely impact of this characteristic on the relative complexity of school and community-oriented CBE programs is depicted in Figure 11.

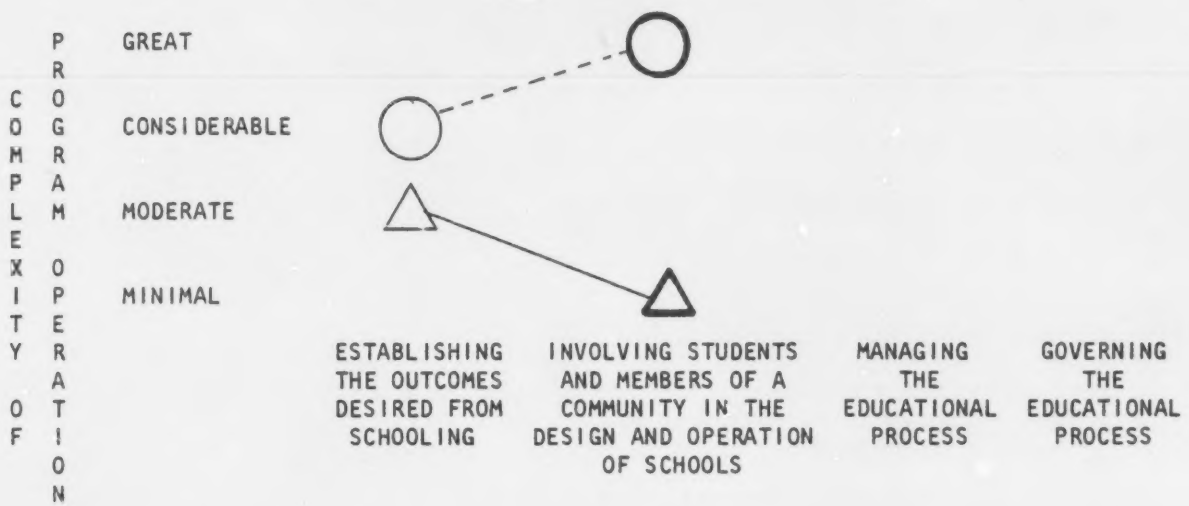
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
ESTABLISHING THE OUTCOMES DESIRED FROM SCHOOLING
INVOLVING STUDENTS AND MEMBERS OF A COMMUNITY IN THE DESIGN AND OPERATION OF SCHOOLS
MANAGING THE EDUCATIONAL PROCESS
GOVERNING THE EDUCATIONAL PROCESS

Figure 11. The complexity added to program operation in community and school oriented models of CBE as a result of the involvement of students and members of a community in the design and operation of schools.

Managing The Educational Process

Under the simplest of conditions managing a competency based education program is a complex undertaking. With the added complexity that is likely to attend the operation of community-oriented programs the processes involved in program management become unusually complex. This is especially so when management related decisions are to be open and data dependent. The anticipated impact of the complexity of program management on the overall complexity of program operation within community-oriented and school-oriented CBE programs is illustrated in Figure 12.

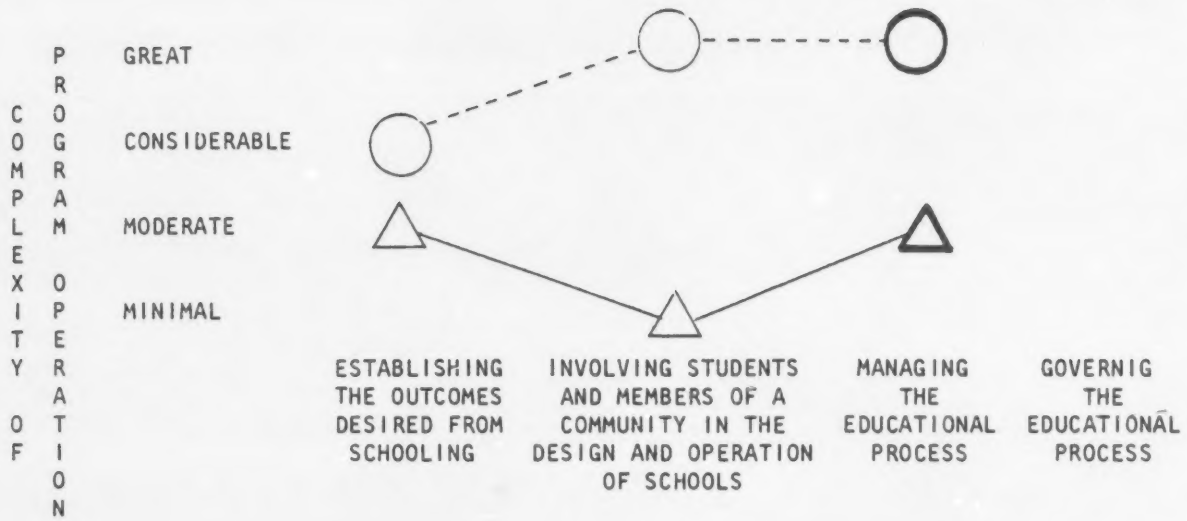
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
ESTABLISHING THE OUTCOMES DESIRED FROM SCHOOLING
INVOLVING STUDENTS AND MEMBERS OF A COMMUNITY IN THE DESIGN AND OPERATION OF SCHOOLS
MANAGING THE EDUCATIONAL PROCESS
GOVERNIG THE EDUCATIONAL PROCESS

Figure 12. The complexity added to program operation in community and school oriented models of CBE as a result of attempting to manage such programs through administrative decisions that are open and data dependent.

Governing The Educational Process

The rationale outlined in relation to program management pertains equally well to program governance. Under the simplest conditions the governance of CBE programs is a complex undertaking, for policy decisions affecting program design and operation are to be made openly and only after related data have been considered. The wider the involvement of students and members of a community in this process the more complex it becomes. On the assumption that involvement is very wide spread in programs stemming from a community-oriented model of CBE the likely contribution of program governance activities to the overall complexity of community- and school-oriented programs can be depicted as in Figure 13

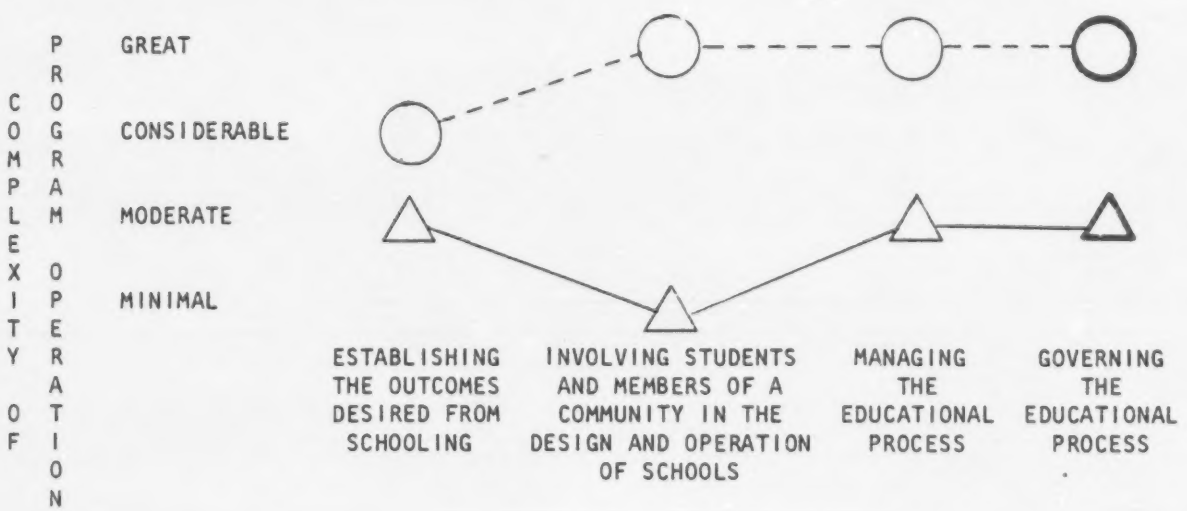
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
ESTABLISHING THE OUTCOMES DESIRED FROM SCHOOLING
INVOLVING STUDENTS AND MEMBERS OF A COMMUNITY IN THE DESIGN AND OPERATION OF SCHOOLS
MANAGING THE EDUCATIONAL PROCESS
GOVERNING THE EDUCATIONAL PROCESS

Figure 13. The complexity added to program operation in community and school oriented models of CBE as a result of attempting to govern such programs through policy decisions that are open and data dependent.

The Illustrative Models In Retrospect

Two alternative models of CBE have been analyzed in the preceding pages from the point of view of the defining and enabling characteristics associated with CBE programs. While the analysis was admittedly cursory, and the conclusions drawn on occasions arbitrary, the analysis suggests that if followed to logical conclusion the two models compared would lead to CBE programs that were quite different in focus and operation. Translating these differences into impact on the complexity of program operation, it appears that a community-oriented model of CBE would on all accounts lead to programs of greater complexity than a school-oriented model. The projected impact of school and community oriented models of CBE on the complexity of program operation as a whole is shown in Figure 13.

Given the greater complexity of programs stemming from community-oriented models of CBE, and the greater costs likely to accompany that complexity, how does a state or school district decide upon the model of CBE to be implemented? There is of course no simple answer to such a question, and it is almost an impossible question to answer until cost-benefit data are available for alternative model-based programs. Until that time such decisions must rest on a trade-off between what is desired and what is possible, what is liked and what is not liked, and what is known and what is not known. If the philosophic commitments or political pressures within a community are sufficiently great to force a community-oriented model to be adopted, it will be adopted indepedent of other considerations. Factors such as the availability of the financial resources and expertise needed to implement such a program will enter at the level of how such a model will be implemented, but they probably will have little to do with the adoption of the model. This is not to imply that this is how adopting decisions should be made, or that all adopting decisions are made in this way, but it does describe how many such decisions are made and model designers should be aware of it.

Whatever the basis for choosing the model of competency based education that is to be implemented, the adopting agency or institution must also be aware that a particular model has a particular set of consequences for program structure and operation, and that these need to be understood as fully as possible before the adoption decision is made. If the model of interest is a school- or community-oriented model the analysis carried out in the previous pages may be of some benefit to understanding these implications. If interest rests in other models, for example, an alternative schools model or a personalized, "humanistic" model, a comparable analysis would have to be made. In the end, of course, concrete decisions must be made in relation to each of the defining and enabling characteristics that comprise a competency based program, and it is only after this has been done that the full impact of adopting decisions can be judged.

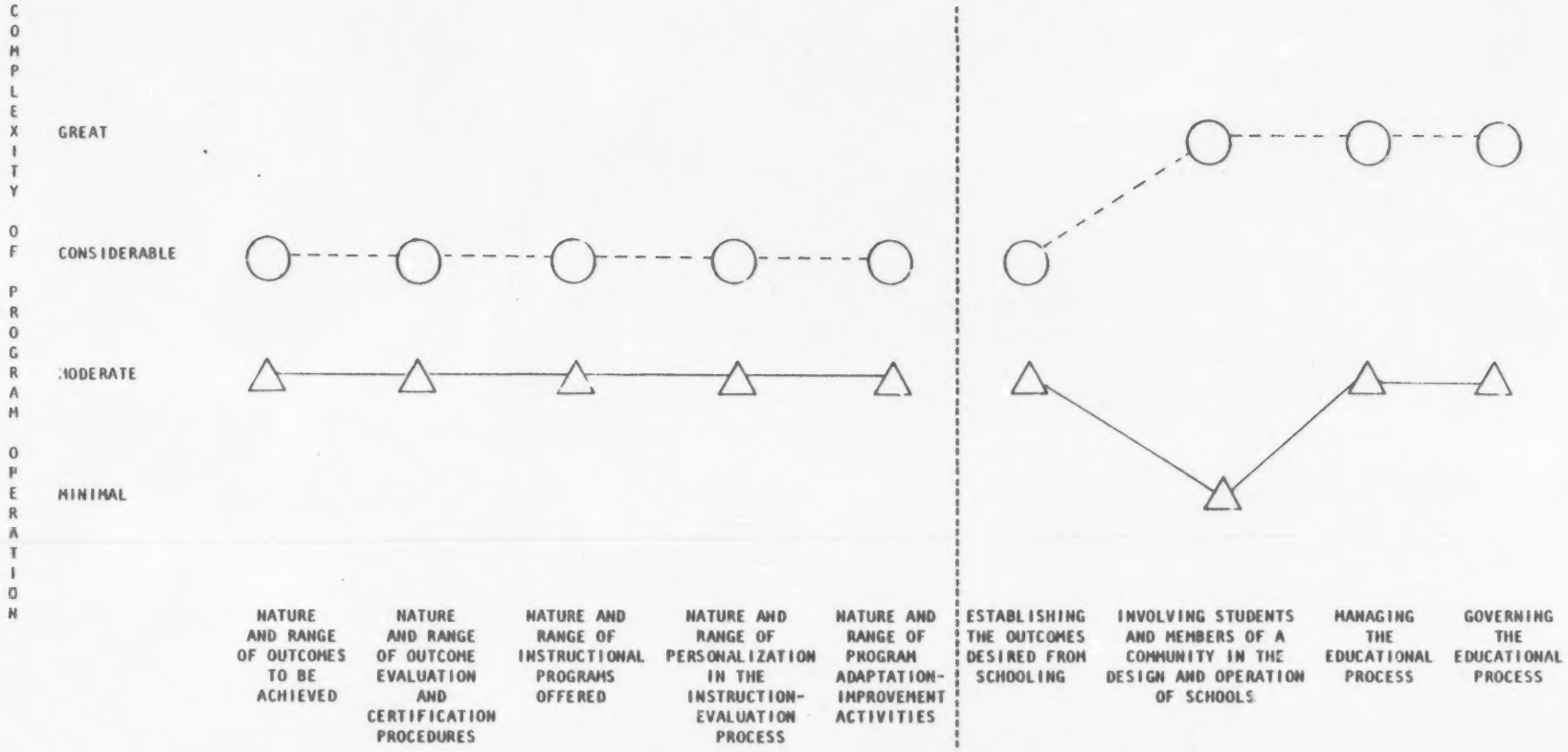
COMPLEXITY OF PROGRAM OPERATION
GREAT
CONSIDERABLE
MODERATE
MINIMAL
NATURE AND RANGE OF OUTCOMES TO BE ACHIEVED
NATURE AND RANGE OF OUTCOME EVALUATION AND CERTIFICATION PROCEDURES
NATURE AND RANGE OF INSTRUCTIONAL PROGRAMS OFFERED
NATURE AND RANGE OF PERSONALIZATION IN THE INSTRUCTION-EVALUATION PROCESS
NATURE AND RANGE OF PROGRAM ADAPTATION-IMPROVEMENT ACTIVITIES
ESTABLISHING THE OUTCOMES DESIRED FROM SCHOOLING
INVOLVING STUDENTS AND MEMBERS OF A COMMUNITY IN THE DESIGN AND OPERATION OF SCHOOLS
MANAGING THE EDUCATIONAL PROCESS
GOVERNING THE EDUCATIONAL PROCESS

Figure 14. The complexity of program operation projected for community and school oriented models of CBE.

Additional Sources Of Variation Within Competency Based Programs That Impact The Nature And Cost Of Schooling

A host of factors beyond those identified as defining and enabling characteristics of CBE programs affect the nature and cost of schooling. These include the ratio of students to teachers, efficiency in the instructional process, quality and background of faculty, and access to materials and space. Such factors are well known to school administrators and members of school boards, so more need not be said about them. Other factors affecting the nature and cost of CBE programs, however, do warrant comment. Three of these are

- a district's orientation to exceptional children;
- a district's orientation to the use of technology as an aid to the process of schooling; and
- a district's orientation to research on the effectiveness of schooling.

Each of these factors will be discussed briefly within the context of CBE programs, for each represents an issue that must be dealt with when implementing such programs.

A District's Orientation To Exceptional Children

As indicated throughout Part II of the monograph, exceptional children pose somewhat of a dilemma for the designers of competency based programs. Are competencies and other outcomes required for graduation to be designed to accommodate all children, independent of learning ability, or should they be geared to accommodate children having at least average ability? If outcomes required for graduation are such that they cannot be met by some children, how are these children to be accommodated within the program? How do CBE programs accommodate the gifted? These are questions that must be dealt with in every educational program, but because of the special features of CBE programs they are particularly vexing.

With the emergence of the concept of "mainstreaming", these problems take on added meaning. In many respects CBE programs are ideal contexts within which to mix learners of all abilities, for a mastery approach to instruction and the personalization of the instruction-evaluation process are designed in combination to accommodate great differences in learners. The management and resource demands that accompany the adaptation of a competency based instructional program to wide differences in learners, however, are great and those who opt for a CBE approach to schooling should be aware of them.

The Orientation Of A District To The Use Of Technology

Many of the educational innovations that have contributed to the emergence of competency based education make heavy use of technology. These include programmed instruction, computer managed instruction, computer based instruction, and computer based scheduling of instruction, as well as the long established use of educational media and "packaged" instructional programs. The emphasis within competency based education on instruction that links to outcomes, on the assessment of outcomes, and on the use of information on outcome achievement for purposes of management and governance decisions invites the continued use of technology in the operation of CBE programs. The orientation a district has with respect to the use of technology, as well as the expertise that is available in its use, is a major factor to be considered in the design of any CBE program.

A District's Orientation To Research On The Effect Of Schooling

It has been argued recently (Schalock, 1974, 1975) that CBE and CBTE programs are unusually rich contexts for research. The argument rests on the assumption that one of the most promising features of the competency based movement is its potential for overcoming many of the measurement problems that have plagued educational research over the years, and for providing better defined and more powerful treatment conditions than educational researchers have had access to in the past. An equally critical assumption is that if these contributions of CBE and CBTE are of the kind and quality anticipated, and if the research community recognizes them as such and takes advantage of their availability, both applied and basic research can be carried out within the context of CBE programs at low cost and with high external validity (Schulman, 1970).

Schalock goes on to point out, however, that while it is possible to combine research with program operation considerable risk is involved in attempting such a venture. High quality measures, for example, are often difficult and costly to obtain. Also, requiring that program operations meet the constraints of experimental design most always creates a cumbersomeness and rigidity that frustrates program managers and participants. Heretofore efforts to design data collection systems that support both program operation and research have tended to end in the design of research programs instead of operational programs that have good data. When this has occurred there has been a nearly universal reaction on the part of program managers and participants: throw the researchers out! (Parlett and Hamilton, 1972).

Recognizing this pitfall it is still possible that if done with care data generation systems can be designed that will support both program operation and research. When this is the case, the best possible context for basic research exists: it can be carried out at low cost and it has a good chance of meeting the requirements of external validity that are not met in most educational experiments.

While the issue of research on the effectiveness of schooling is foreign to most school boards and administrators, it is an issue that looms large in implementing competency based education programs. Not only do such programs for the first time provide opportunity for education moving to an empirically based mode of operation, but they provide the means by which educational programs can be systematically improved as well. For these reasons all designers of competency based programs need to consider the extent to which a program is to serve as a context for research. If the decision is to have the program become such a context there are implications that stretch throughout essentially every facet of program operation.

The Concept Of Alternative Models Of Competency Based Education In Perspective

Having looked at two competing models of CBE in some detail, and having considered additional sources of variation affecting the operation of CBE programs, it seems appropriate to come full circle and consider once again the concept of alternative models of CBE. Is the concept useful? Is it logically defensible?

As stated early in this section of the monograph, the utility of the concept of alternative models of CBE has a great deal to do with the power of the labels given to models to communicate what the models are about. The label describing a particular model of CBE carries with it a set of implied meanings that help differentiate the programs of schooling based upon the model from programs based on alternative models. The reality of these implied meanings, of course, depend on the concrete meanings the designers of CBE programs give to each of the defining and enabling characteristics of such programs, but to the extent that implied meanings are reflected in design decisions the ability to identify major model characteristics from model labels represents major utility.

It has also been argued throughout this section of the monograph that all that is required to formulate a model of CBE is to specify a particular constellation of the defining and enabling characteristics that comprise a CBE program, or a special emphasis to be given to any one of these characteristics, and label it accordingly. With this approach to model building there is essentially no limit to the range and the number of alternative models of CBE that can be established.

Does such a catholic view of models violate the meaning of the term? In the authors' judgment, no. At least not so long as the meanings associated with the term proto-model are maintained. An approach to education that is as complex and many-sided as is CBE must of necessity have endless variety and form. And this is what needs to be, for if an approach to education is ever to make a difference it must be applicable to the widest possible range of contexts and people within contexts. Competency based education seems to meet this criterion, and as such represents a promising new hybrid in the continued evolution of American education.

REFERENCES

Burdin, J.L. and K. Lancillott. A Reader's Guide to the Comprehensive Models For Preparing Elementary Teachers. Washington, D.C.: ERIC Clearinghouse on Teacher Education. 1969.

Denham, C.H. Criterion-Referenced, Domain-Referenced and Norm-Referenced Measurement: A Parallax View. Educational Technology, December, 1975. pp. 9-13.

Dickson, G.E. and R.W. Saxe, et al. Partners for Educational Reform and Renewal. Berkeley, California, McCutchan Publishing Corporation, 1973.

Eisele, J.E. and P.M. Halverson. Assumptions Underlying Competency-Based Education. In Thrust for Educational Leadership. A publication of the Association of California School Administrators. Vol. 5, No. 2, 1975. pp. 4-6.

Fairbanks, D.W. and W.E. Hathaway. Competency Based Education in Oregon. Northwest Regional Educational Laboratory. Portland, Oregon. December 1975.

Gage, N.L. and P. Winne. Performance-Based Teacher Education. In Teacher Education, 1975. Chicago: The National Society for the Study of Education, 1975.

Garrison, J. and M. Hiatt. A Slide Tape (Protocols) on Competency Based Teacher Education at Oregon College of Education. The Teaching Research Division, Oregon State System of Higher Education, Monmouth, Oregon. 1975.

Glick, I.D., M.J. Henning, and J.R. Johnson. CBE: How to Prevent a Second Orthodoxy. Educational Technology, August, 1975. pp. 17-20.

Grant, C.A. (Ed.) Sifting and Winnowing: An Exploration of the Relationship Between Multi-Cultural Education and CBTE. Madison, Wisconsin: Teacher Corps Associates, University of Wisconsin-Madison. 1975.

Greco, T.H. Is There Really A Difference Between Criterion-Referenced and Norm-Referenced Measurements? Educational Technology, December, 1974. pp. 22-25.

Hall, M. Competency-Based Education in Oregon: An Overview. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C. March 31-April 4, 1975.

Hathaway, W.E. and V.W. Doherty. Introduction to Course Goals for Educational Planning and Evaluation, K-12. Third edition, Commercial Educational Distribution Services, Portland, Oregon. 1975.

Hathaway, W.E. and V.W. Doherty. "Designing Behavioral Goals, K-12", OASCD Curriculum Bulletin, Salem, Oregon. December, 1973.

Hathaway, W.E. and A.P. Hathaway, "The Unique Contributions of Piagetian Measurement to Diagnosis, Prognosis, and Research of Children's Mental Development," Proceedings of the Fourth Annual Conference On Piaget and the Helping Professions, Children's Hospital of Los Angeles, Los Angeles, February, 1974.

Hathaway, W.E. "Accountability and the Humanities," Proceedings of the National Council of Teachers of English Northwest Regional Conference, Portland, Oregon, March 1973.

Hathaway, W.E. "Competency Based Education - An Underview," Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C., April 1975.

Hathaway, W.E. "Practical Advances in Goal-Based Evaluation of School Learning," Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C. April 1975.

Hathaway, W.E. "Toward a Comprehensive System for Goal-Based Program Development and Evaluation in School District," Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, Illinois. April 1974.

Hathaway, W.E. "Toward a Comprehensive, Validated System for Classification of Knowledge, Process, and Value Student Learnings," Paper presented at the Annual Meeting of the American Educational Research Association," Chicago, Illinois. April 1974.

Hathaway, W.E. "The Course Goals Project--A Report," Paper presented at the Annual Meeting of the Pacific Northwest Educational Research and Evaluation Conference, Setattle, Washington. May 1973.

Hathaway, W.E. "Accountability and Humanistic Education," Paper presented at the Second Annual Conference on Contemporary Issues in Educational Measurement, Eugene, Oregon. May 1973.

Hathaway, W.E. "Goal-Based Educational Planning and Evaluation," Paper presented at the Annual Meeting of the Oregon Association for Supervision and Curriculum Development, Kah-nee-ta, Oregon. April 1973.

Hathaway, W.E. "The Degree and Nature of the Relations Between Traditional Psychometric and Piagetian Developmental Measures of Mental Development," Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans. February 1973.

Hathaway, W.E. "Goal Based Evaluation," Paper presented at the Oregon Association for Supervision and Curriculum Development Northern Regional Fall Conference, Mt. Hood Community College, Portland, Oregon. October, 1972.

Hathaway, W.E. The Use of Operations Research and Systems Engineering Models for Rationalizing the Decision Process in Educational Systems. Unpublished paper. 1968.

Hite, H. The Cost of Performance Based Teacher Education. Journal of Teacher Education, Vol. 24, No. 3, 1973. pp. 221-224.

Houston, W.R. Competency Based Education. In Exploring Competency Based Education. Ed. W.R. Houston. McCutchan Publishing Corporation, Berkeley, California. 1974. pp. 3-15.

Houston, W.R. and R.B. Howsam. Challenge and Change. In W.R. Houston and R.B. Howsam (Eds.) Competency Based Teacher Education:Progress, Problems and Prospects. Science Research Associates, Chicago. 1972. pp. 1-16.

Howsam, R.B. Performance-Based Instruction. Today's Education, April, 1972. pp. 333-337.

Jencks, C., M. Smith, H. Acland, M.J. Bane, D. Cohen, H. Gintis, B. Heyns, and S. Michelsen. Inequality: A Reassessment of the Effects of Family and Schooling in America. New York, Basic Books, 1972.

Merrow, J.G. The Politics of Competence" A Review of Competency Based Teacher Education. Washington, D.C.: Office of Research and Exploratory Studies, National Institute of Education. 1974.

Performance-Based Teacher Education: A 1975 Commentary. The Committee on Performance Based Teacher Education of the American Association of Colleges for Teacher Education. One Dupont Circle, Washington, D.C. 1975.

Process Standards for Education Personnel Development Program, 1974. Teacher Standards and Practices Commission, 942 Lancaster Drive NE, Salem, Oregon, 97310.

Schalock, H.D. and J.R. Hale (Eds.) A Competency Based, Field Centered Systems Approach to Elementary Teacher Education. Vol. I: Overview and Specifications. Vol. II: Appendices. U.S. Office of Education, Bureau of Research. Project No. 89022. Portland, Oregon: The Northwest Regional Educational Laboratory. 1968.

Schalock, H. D. The first of two slide tapes in a series of slide tapes (Protocols) on competency based teacher education in the Northwest.
#1. Competency Based Education: An Introduction.
#2. Competency Based Teacher Education in the Northwest: Variations on a Theme.
The Teaching Research Division, Oregon State System of Higher Education, Monmouth, Oregon. 1975.

Schalock, H. D. Closing the Knowledge Gap: CBTE Programs as a Focus of and Context for Research in Education. A position paper of the consortium of CBE Centers. To be published by the Multi-State Consortium for Performance Based Teacher Education. 1975.

Schalock, H. D., B. Y. Kersh and J. H. Garrison. From Commitment to Practice: The OCE Elementary Teacher Education Program. Washington, D. C. The American Association for Colleges of Teacher Education. 1976.

Schalock, H. D., B. Y. Kersh and L. L. Horyna. A Plan for Managing the Development, Implementation, and Operation of a Model Elementary Teacher Education Program. Vols. I & II. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 1970.

Schalock, H. D., B. Y. Kersh and L. L. Horyna. An Introduction to ComField: A Competency Based, Field Centered, Personalized and Systematic Model for Elementary Teacher Education. Monmouth, Oregon: The Teaching Research Division of the Oregon State System of Higher Education. 1970.

Schalock, H. D. A Competency, Personalized and Field Centered Model of an Elementary Teacher Education Program. Journal of Research and Development in Education, 1970, 3, 68-80 (and 1969, 2, 40-43).

Schalock, H. D. Implications of the Oregon Board of Education's proposed "Process Standards" for the design and operations of teacher education programs. Interpretive paper No. 1: Defining and assessing teacher competence. April, 1973. Mimeographed.

Schalock, H. D. Competency Based Teacher Preparation. A chapter in New Directions in Teaching Education: Problems and Prospects for the Decades Ahead. Vol. I. Edited by D. W. Anderson, M. V. DeVault and G. E. Dickson. San Francisco: McCutcheon Publishing Co. 1972.

Schalock, H. D. BEPD, NCERD, and Teacher Education That Makes a Demonstrable Difference. In Ben Rosner (Ed.) The Power of Competency Based Teacher Education. Prepared by the Committee on National Program Priorities in Teacher Education. New York: Allyn and Bacon. 1972.

Schalock, H. D., B. Y. Kersh and J. H. Garrison. From Commitment to Practice in Assessing the Outcomes of Teaching: A Case Study. In T. E. Andrews (Ed.) Assessment. Albany, New York: Multi-State Consortium on Performance Based Teacher Education. 1973. Pp 58-90.

Schalock, H. D. The Impact of Competency Definition on Teacher Preparation Institutions. Educational Leadership, January, 1974. Pp 318-321.

Schalock, H. D. Notes on the Concept of Assessment in the Context of Performance Based Teacher Education. In W. R. Houston (Ed.) Exploring Competency Based Education. Berkeley, California, McCutcheon. 1974. Pp 209-250.

Schalock, H. D. Closing the Knowledge Gap. In W. R. Houston (Ed.) Competency Assessment, Research, and Evaluation: A report of a national conference at the University of Houston, March, 1974. Albany, New York: Multi-State Consortium on Performance Based Teacher Education. 1975. Pp 34-60. (A summary of a position paper prepared by the Consortium of CBE Centers on CBTE programs as a focus of and context for research in education.)

Smith, B.O. and D.E. Orlosky. Socialization and Schooling: The Basics of Reform. Bloomington, Indiana: Phi Delta Kappa, 1975.

Spady, W.G. "The Impact of School Resources on Students," Review of Research in Education, Vol. 1, Fred N. Kerlinger, Ed., American Educational Research Association, 1973, pp. 135-177.

Spady, W.G. "The Authority System of the School and Student Unrest: A Theoretical Exploration," National Society for the Study of Education, 1974 Yearbook on Education, pp. 36-77.

Spady, W.G. "Authority and Empathy in the Classroom," in The Sociology of Schools and Schooling, David W. O'Shea, Ed., National Institute of Education, 1974. pp. 87-125.

Spady, W.G. "Competency Based Education as a Framework for Analyzing School Reform," Paper presented at the Third Annual Conference of the Sociology of Education Association, Asilomar, California. 1975.

Spady, W.G. "Critical Sociological Dimensions in Competency-Based Graduation Requirements," Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C. April, 1975.

Stiles, R., F. Forster, and W.E. Hathaway, "Use of the Rasch Model with Content Referenced Tests," Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C. April 1975.

Stone, R. A View of the Conferences. In Mathematics Models in Educational Planning. O.E.C.D., Paris. 1967.

Utz, R.T. and others. "A Comparative Analysis of Two Modes of Implementing Competency Based Instructional Systems," Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, Illinois. 1974.

APPENDIX

AN ANNOTATED BIBLIOGRAPHY ON COMPETENCY BASED EDUCATION

Much attention has been directed recently toward the concept of competency based education (CBE) in elementary and secondary education. However, few school systems have implemented full-scale CBE programs, and little information has been publicly reported on the operation of system-wide CBE programs. Such information should result from the current efforts of certain state and local education agencies to install competency based programs and from a National Institute of Education funded program of support and study of these efforts.*

This bibliography provides reference to extant resources related to CBE, K-12. It presents that part of the literature which seems most useful in understanding the current state-of-the-art in CBE. Accordingly, each document selected meets one or more of the following criteria:

a. It provides a comprehensive or indepth coverage of the area.

b. It is the most recent statement on the topic.

c. It provides a unique perspective or viewpoint.

d. It is a comprehensive secondary source; reviewing, citing or otherwise guiding to a variety of useful primary sources.

The bibliography is divided into four categories. The first group of documents presents theoretical models and research on CBE. Category two comprises articles that describe experience with system-wide CBE implementation or that provide suggestions for programmatic efforts in installing elementary and secondary CBE. Documents in category three discuss the how and why of competency-based instruction. The fourth category addresses competency or performance based teacher education. Each group of citations is preceded by an overview of the documents included.

---

*For information regarding documents currently available on CBE in Oregon, please see Competency Based Education in Oregon. Oregon Competency Based Education Program, Walter E. Hathaway, Director, Northwest Regional Educational Laboratory, Portland, Oregon, December 31, 1975.

Category I:
Conceptual Frameworks, Models and Research Related to CBE

The papers in Category I present theoretical frameworks for conceptualizing and analyzing competency based education. Each provides a theoretical context that may be useful to practitioners in the early stages of CBE program formulation.

Gale and Pol present a conceptual framework of CBE working from a molar definition of competence. This definition has implications (a) for the assessment of competence in the context of a life role, and (b) for the type of instruction necessary to promote role competence.

Howsam proposes a model which defines both essential and supportive elements of CBE. The Jones paper addresses the functions of education of the future, and suggests ways that CBE can be responsive to anticipated needs. Spady focuses on the functions of schooling from a sociological perspective. He discusses the functional implications of implementing CBE on a system-wide basis.

Woditsch develops a model of CBE curriculum based on a definition of competence in terms of generic (context independent) conceptual ability rather than factual knowledge. Woditsch, et al, review research on learner centered curricula, including competency based program, and discuss some implications of this type of educational orientation.

Gale, Larrie E., and Pol, Gaston. Educational Technology, June, 1975

Provides a conceptual framework that describes inter-relationships between the elements of competence (e.g., knowledge, skills, attitudes, values) and the molar concept of competence. Competence is defined as: "...the quality of being functionally adequate in performing the tasks and assuming the role of a specified position with the requisite knowledge, ability, capability, skill, judgment, attitudes and values" (p. 21).

Howsam, R.B. "Performance Based Instruction: Some Basic Concepts." In Education Yearbook 1973-74. New York: Macmillan Educational Corp., 1973. Reprinted from Today's Education, April 1972.

The paper proposes a concentric circle model of performance based instruction (PBI) and its relationship to other closely related concepts. These concepts are termed "enhancers" and "enablers." Characteristics of PBI in the classroom are discussed and certain adjunct supporting processes such as community involvement are noted. Performance based teacher education (PBTE) is defined as the application of PBI to teacher preparation, and a concentric circle model whose elements are specific to PBTE is presented.

Jones, H. Competency Based Education: The Emerging Center of Leadership. ED 104 862, 1975.

This document suggests ways in which competency based education (CBE) offers a productive direction for education in a society of rapid environmental changes. The study urges that (a) the concept of graduation be deemphasized, (b) continuing education be recognized as a necessity in a society of advancing technologies, and (c) education be available seven days a week on a 24-hour basis. It also notes that the independent study and modular concepts of CBE fit in well with such an educational reorganization. Part three discusses the future training of teachers, emphasizing (a) the importance of personal style, (b) the possible use of microteaching sessions to develop teaching techniques, and (c) problems and their solutions concerning CBE and certification. (Excerpt from ERIC abstract)

Spady, W.G. "Competency Based Education as a Framework for Analyzing School Reform." Paper presented at the Third Annual Conference of the Sociology of Education Association, "School Reforms of the 1970's," Asilomar, Calif., January 31-February 2, 1975.

Spady, W.G. "Critical Sociological Dimensions in Competency Based Graduation Requirements." Paper presented as part of a symposium entitled "Coping with Competency Based Graduation Requirements: New Research and Development Actors, Roles, and Ideas" at the Annual Meeting of the American Educational Research Association, Washington, D.C., April, 1975.

These two papers provide a sociologist's perspective of the theoretical implications of CBE, especially as exemplified in the Oregon mandate for statewide implementation of CBE. These implications arise from CBE's impact on the five functions of schooling: instruction, socialization, custody-control, evaluation-certification, and selection. The differentiated impact of CBE variations on each function of schooling is explored.

Woditsch, G.A. "Developing Generic Skills: A Model for Competency Based General Education" (Unpublished). September, 1975.

This paper presents a novel approach to the definition of competency. A model is proposed for college level instruction based on competence in conceptual ability rather than knowledge of subject matter. Such instruction crosses disciplines and has two components. "Component I has as its objective the development and exercise of generic cognitive skills." "Component II has as its objective the development of competence in the application of generic skills" (p.4).

Woditsch, G.A., and others. "Assaying the Great Cargo Cult: Recent Research on Learner Centered Curricula." Paper presented at the National Conference on Higher Education sponsored by the American Association of Higher Education, Chicago, March, 1975.

This paper presents a brief overview of current research on learner centered curricular reform and of some of the issues attendant to

its character and quality. Seven groupings of learner centered reform are discussed in relation to current research and findings: performance and competency based programs, personalized instruction, cooperative learning and programs for the nontraditional student, time shortened baccalaureate programs, interdisciplinary programs, individualized degree programs, and independent study. (ERIC abstract)

Category II:
Developing Competency Based Education Programs, K-12

The documents in this section address aspects of CBE installation and implementation in elementary and secondary schools.

The issue of Thrust presents a practical articulation of issues and implications of CBE for school administrators. Three of the topics impinge on policy concerning curriculum and instruction, and two articles provide direct suggestions for leadership efforts by administrators. - Dickson, et al. present a model for implementation of CBE and similar programs in schools. The model is based on the ideally close interaction between school programs and teacher preparation programs. The book is grounded in experience with local school systems.

Working from a description of CBE as an educational innovation, Glick et al. suggest ways of developing and maintaining a program that avoids the stagnation problems of previous reforms. Sister Lawrence provides a composite view of the activities involved in implementing a system-wide CBE program in the Toledo, Ohio Diocesan Schools. Utz et al. compare the implementation of CBE in the Diocesan Schools with the Individually Guided Instruction and Multi-Unit School concept in the Toledo Public Schools.

"Competency Based Education and Articles and Interest." Thrust. Association of California School Administrators: 5(2), November, 1975.

"Education for the real world, Competency Based Education, is the theme of this issue of Thrust," states Leo St. John in the Preface. Topics include a discussion of assumptions underlying CBE, implications of the contention that CBE places special emphasis on intellectual process, and an evaluation of qualitative as well as quantitative aspects of education. Suggestions are provided for inservice programs to facilitate implementation of CBE programs, and for guiding committees engaged in formulating competency based graduation requirements.

Dickson, G.E., Saxe, R.W. Partners for Educational Reform and Renewal: Competency Based Teacher Education, Individually Guided Education and the Multi-Unit School. Berkeley, California: McCutchan Publishing, 1973.

This book describes a "comprehensive competency based teacher education model for broad educational reform and renewal." The model emerged from work in the College of Education, University of Toledo, Ohio. The College of Education faculty assisted the Toledo Diocesan School System to develop and implement a competency based curricular program. They also worked with the Toledo Public Schools in an individually guided education program.

Glick, I.D., Henning, M.J., and Johnson, J.R. "CBE: How to Prevent a Second Orthodoxy." Educational Technology, August, 1975.

"CBE has taken a position that calls for rejection of some time honored assumptions in teaching and a complete overhaul of classroom practice and curriculum development. To this end CBE is much more comprehensive than most educational innovations of the past decade" (p. 18). From this position the paper cautions against permitting CBE to "become entrenched and rigidified." To prevent this it is suggested that (a) five "process structures" should be part of the CBE program--the Instruction Team Council, teaching teams, Multi-Instructional Congress, transactional leadership, and field/action research activities--and that (b) five product structures should be integrated with the process structures--module review, effectiveness research, internal and external evaluation, affective assessment, position papers and student success in the public and academic market places.

Lawrence, Sister M. "Gearing Up for Curriculum Change: A Chance for Every Child: Assessing Needs Through Specific Goals." Paper presented at the Annual Meeting of the American Association of Colleges for Teacher Education, February 27, 1975.

The paper presents the rationale for use of a CBE model in the Toledo Diocesan School System, steps in the implementation, and the involvement of the University of Toledo College of Education Competency Based Teacher Education Program. Additionally, the author describes how parents, administrators, and faculty were consulted in the development of curriculum guides which were "major tools in implementing the philosophy of competency based education." (ERIC abstract)

Utz, R.T., and others. "A Comparative Analysis of Two Modes of Implementing Competency Based Instructional Systems." Paper presented at American Educational Research Association Annual Meeting, Chicago, April, 1974.

The Toledo Public Schools and the Toledo Diocesan Schools have both been involved in the implementation of competency based instructional systems in the past three years. Each system has achieved implementation in varying degrees and by contrasting methodologies. The objectives of this paper are to (1) examine the theoretical framework, the social contexts, the staffing constraints, the inservicing, the implementation phases, and the feedback mechanisms of these two programs; (2) analyze these components as to their similarity and dissimilarity, noting particularly their degree of functionality; and (3) synthesize generalizations potentially applicable to the implementation of any competency based instructional system (ERIC abstract).

Category III:
Competency Based Instruction--Why and How

Literature reviewed in previous sections of this bibliography suggests that competency based education includes a number of defining characteristics. Competency based instruction remains central among these characteristics. The documents in this section provide various perspectives on the instruction within CBE.

The November 1972 issue of Educational Technology is devoted to competency based education. This compilation of articles represents one of the first nationally visible attempts to relate the concepts of CBE and the experiences of CBTE to elementary and secondary curriculum and instruction. Henson argues for the notion of performance based teaching (a term which is essentially equivalent to competency based instruction), and against the idea that accountability brings pressures that restrict creative teaching. Nagel and Richman present a text on how to teach in a competency based manner and why this type of instruction is preferable to either traditional instruction or lesser efforts on the road to CBI.

"Competency Based Education." Educational Technology. 12 (11),November, 1972.

The articles in this issue are devoted to "implications of Competency Based Education for students, teachers, administrators." Several articles attempt to generalize the concept of CBE to the elementary and secondary curriculum; others provide philosophical and historical background and relate C/PBTE to competency based instruction.

Henson, K.T. "Accountability and Performance Based Programs in Education: Some Pros and Cons." Reprinted from Intellect, January, 1974.

This paper presents Performance Based Teaching (PBT) in a very favorable manner. The author suggests that PBT will fail in such areas as addressing affective objectives, challenging the gifted student, using local objectives vs. outsider's objectives, and rewarding good teaching. These concerns arise from the sometimes punitive nature of the accountability movement.

Nagel, T.S., and Richman, P.T. Competency Based Instruction: A Strategy to Eliminate Failure. Columbus, Ohio: Charles E. Merrill, 1972.

This programmed text is directed to the classroom teacher. CBI is discussed in terms of four basic premises: (a) time should vary while achievement is held constant; (b) entrance requirements are relatively unimportant while exit requirements should be stressed; (c) instructional objectives should be provided to the learner prior to instruction; (d) instruction should be personalized.

Category IV:
Competency/Performance Based Teacher Education

A comprehensive bibliography on CBTE would have literally hundreds of references. The documents referenced in this section provide current overviews in the area of CBTE, good bibliographic resources, or both, and which have elements related to CBE.

Phi Delta Kappan, January, 1974 contains a number of articles related to various issues concerning CBTE. Although some of the authors are also found in the Houston book, other articles suggest additional and complementary perspectives. The Gage and Winne monograph in the 1975 NSSE Yearbook is a recent state-of-the-art statement on CBTE which delineates central problems and issues in this area. The Houston book provides the most comprehensive compilation of work in CBTE to date. Houston previously authored several documents from the Multi-State Consortium on Teacher Education which has sponsored extensive study of C/PBTE. His book consists of papers reviewing research findings and thinking in this area, which are written by prominent practitioners, theorists and researchers. It contains a bibliography complete to 1974. Nix has edited a categorized annotated bibliography on literature for use in considering issues in competency/performance based teacher certification. Some of the documents are unpublished descriptions of programs, primarily in the Southeast.

Phi Delta Kappan, 55 (5), January 1974.

Articles in this issue discuss whether C/PBTE has or will fulfill the expectations for it, the results of state mandates, measurement issues, and focus of C/PBTE programs on affective skills. Several of the authors also appear in W.R. Houston (ed.) Exploring Competency Based Education.

Gage, N.L., and Winne, P.H. "Performance Based Teacher Education." Teacher Education: The Seventy-fourth Yearbook of the National Society for the Study of Education, Part II. Kevin Ryan, Ed. Chicago: NSSE: 1975.

This article provides a state-of-the-art overview of PBTE, including references current to 1975. Following brief sections on definition and history of PBTE, several pages are devoted to information and discussion on four issues the authors have identified as the central problems: "(a) the humanistic criticisms of PBTE; (b) the relationship between teachers' performances and student achievement; (c) the trainability of desirable teacher behaviors; and (d) the costs incurred in developing and installing PBTE programs" (p. 151). The final section considers "the two kinds of assessment problems that arise in PBTE: Those of monitoring the performance of trainees as they move through the PBTE program, and those of assessing the quality of the PBTE program itself" (p. 165).

Houston, W.R., ed. Exploring Competency Based Education. Berkeley: McCutchan Publishing, 1974.

This book is both a comprehensive and authoritative compilation of literature on CBTE, including a 700-item bibliography current to

early 1974. An excerpt from the ERIC abstract describes the content: "Analytical examinations are presented by advocates and critics in the field. Part 1, entitled,'The Essence of the Approach,' explores the basic meaning of CBE giving several definitions, tracing the psychological and theoretical bases, speculating on several misconceptions about the movement, and examining individualized and humanized education. Part 2, entitled 'Critics' and Advocates' Appraisal,' evaluates basic concepts of CBE. Part 3, entitled 'Models for Competency Identification,' describes several models for identifying competency, including a process from alternative models of teaching, a model of professionalism, and a task analysis of teaching and the judgments of classroom teachers and supervisors in specifying the competencies. Part 4, entitled 'Competency Evaluation,' considers the basic dimensions of assessment and evaluation for student achievement and program effectiveness. Part 5 entitled 'Changing American Education,' examines fundamental notions of the institutional change process."

Nix, J.P., Compiler. Performance Based Certification: A Selected Annotated Bibliography. ED 103391, March 14, 1975.

This annotated bibliography cites information helpful in obtaining an overview of (a) issues and problems in performance certification, (b) current developmental efforts by states in performance-based certification, and (c) alternative roles state agencies might assume in planning, developing, and implementing a performance-based certification program. It also contains technical information concerning research on teaching competencies and approaches to assessing them. The bibliography is divided into the following seven chapters: (a) Bibliographies on Competency Based Teacher Education and Performance Based Teacher Certification; (b) Teacher Education: State of the Art; (c) Competency Based Education and Performance Based Certification: A Survey of the States; (d) Teacher Competencies: Lists of Behaviors; (e) Review of Research on Validated Teacher Competencies; (f) Assessment of Competencies, and (g) State Agency Roles in Planning, Developing and Implementing Competency Based Teacher Education and Performance Based Certification. All documents included are post-1970. (ERIC abstract)